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# COMPACTION REQUIREMENTS FOR SOIL COMPONENTS OF FLEXIBLE AIRFIELD PAVEMENTS

TECHNICAL REPORT NO. 3-529

November 1959

U. S. Army Engineer Waterways Experiment Station
CORPS OF ENGINEERS
Vicksburg, Mississippi

ARMY-MRC VICKSBURG, MISS.

## PREFACE

The study reported herein was authorized by the Office, Chief of Engineers. Authority for the study is contained in "Instructions and Outline for Field Compaction Requirements for High-pressure Tires and Multiple-wheels (Fiscal Year 1954)," dated October 1953, as amended and modified by addendum No. 1 dated August 1954 and addendum No. 2 dated April 1955.

This study was made by the Flexible Pavement Branch, Soils Division, U. S. Army Engineer Waterways Experiment Station, Vicksburg, Miss., for the Airfields Branch, Engineering Division, Military Construction, Office, Chief of Engineers. It was performed under the general supervision of Messrs. W. J. Turnbull, C. R. Foster, A. A. Maxwell, and R. G. Ahlvin by Pfc. E. J. French and Messrs. Donald N. Brown and Donald M. Ladd. Messrs. Ahlvin, Brown, and Ladd prepared this report.

Directors of the Waterways Experiment Station during the conduct of this investigation and preparation of this report were Col. A. P. Rollins, Jr., CE, and Col. Edmund H. Lang, CE. Mr. J. B. Tiffany was Technical Director.

CONTENTS

# SUMMARY

This report presents the results of an analytical study made to develop criteria for determining the degree of compaction required at different depths in soils beneath flexible airfield pavements to prevent consolidation of the soil under wheel loads and consequent deformation of the pavement. The report pertains particularly to pavements constructed for use by airplanes with high-pressure tires and multiple wheels.

Data obtained from observations of airfield pavements in actual service and from reports of accelerated traffic tests on carefully controlled test sections were tabulated, and from these tabulations correlations were developed between the compaction effort applied to flexible pavements by aircraft traffic and the densities resulting from this compaction effort at various depths.

The established CBR relations were used to integrate the effects of wheel load, tire pressure, assembly configuration, and depth below pavement surface into a compaction index, $C_i$, for purposes of this study. Correlations between $C_i$ and the densities required to prevent further compaction are presented. Appendix A gives an example of the use of the correlations in preparing compaction requirements.

# COMPACTION REQUIREMENTS FOR SOIL COMPONENTS OF FLEXIBLE AIRFIELD PAVEMENTS

## PART I: INTRODUCTION

### Background

1. Part XII, Chapter 2, dated 1943, of the Engineering Manual for Military Construction (now designated EM 1110-45-302) required that the top 6 in. of the subgrade beneath flexible airfield pavements be compacted to 95 per cent of modified AASHO maximum unit weight, and that all fill material below the 6-in. depth be compacted to 90 per cent of this unit weight. Compaction in cuts below the top 6 in. was not required.

2. In 1945 a study was made of the degrees of compaction existing in certain accelerated traffic test sections and airfield pavements. This study showed a definite relation between magnitude of wheel load, soil depth, and degree of compaction. The study also showed that separate relations exist for cohesionless sands and cohesive soils. The results of the study were included in background information submitted to the Office, Chief of Engineers, to support changes recommended for Part XII, Chapter 2, of the Engineering Manual for Military Construction, and form the basis for the following table which appeared in the 1946 issue of that part of the manual.

Compaction Requirements

| Wheel Load lb | Depth in Inches Below Pavement Surface to Which Indicated Per Cent of Modified AASHO Density Should Extend | | | |
|---|---|---|---|---|
| | All Subgrades Except Cohesionless Sands | | Cohesionless Sands | |
| | 100 per cent | 95 per cent | 100 per cent | 95 per cent |
| 5,000 | -- | -- | -- | 12 |
| 15,000 | -- | 12 | 12 | 24 |
| 40,000 | 12 | 18 | 24 | 36 |
| 60,000 | 18 | 30 | 30 | 48 |
| 150,000 | 30 | 54 | 48 | 78 |

3. No report has been issued on the 1945 study, but fig. 1 shows the plots of basic data illustrating the variation of compaction with depth, and also the summary plots of the relations of load, depth, and degree of

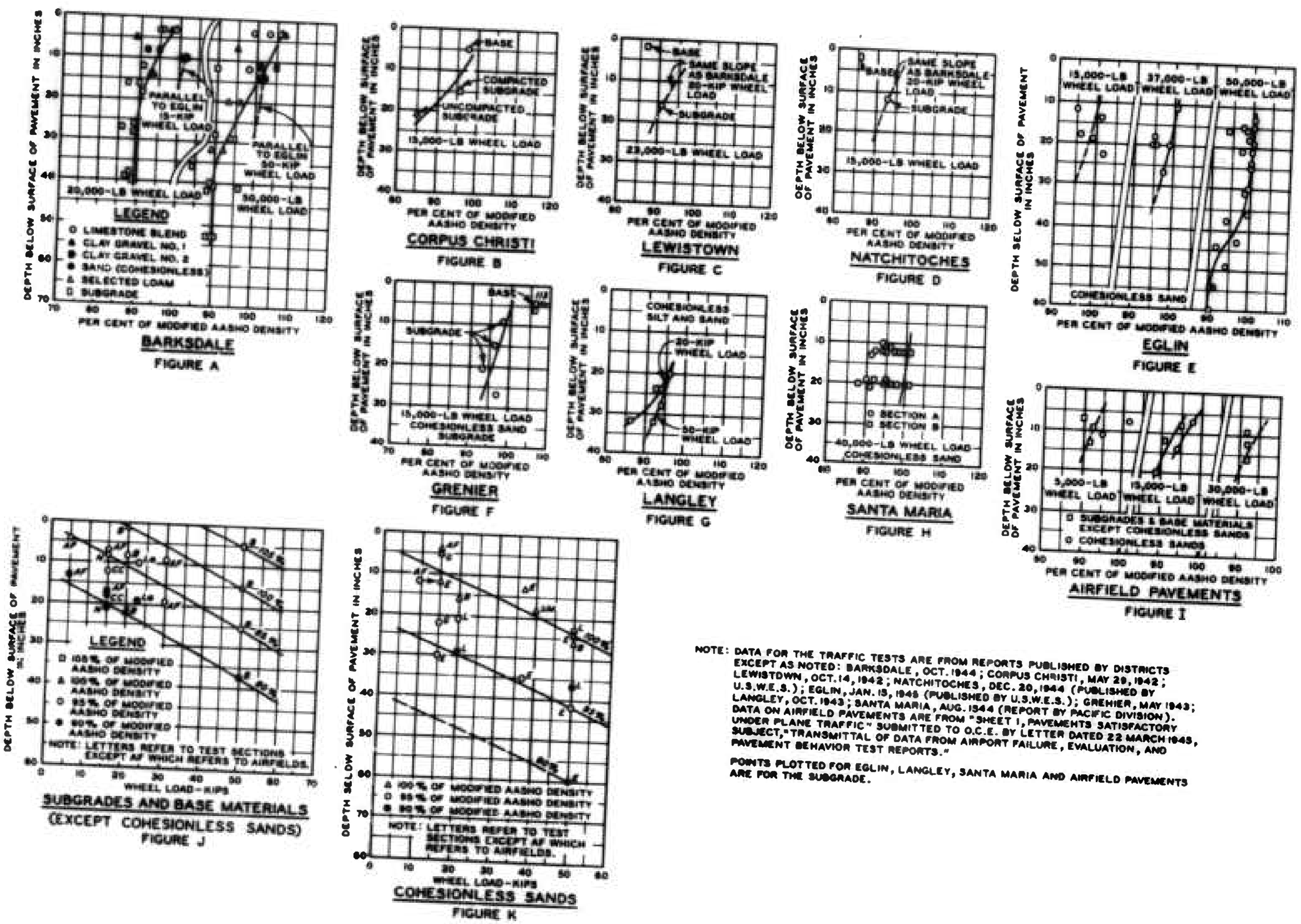


Fig. 1. Compaction study data

compaction for the two soil types. Tire pressure was not considered in this analysis.

4. In 1950 the necessity developed for establishing flexible pavement design criteria for multiple-wheel gears and high-pressure tires, which involved further study of compaction requirements. A study of compaction requirements contained in the 1946 issue of Part XII, Chapter 2, of the Engineering Manual for Military Construction showed that a definite relation existed between the required degree of compaction given in the table in paragraph 2 and the maximum shear stress ($\tau_{max}$) resulting from single wheel loads. The theory of elasticity was used to compute $\tau_{max}$. Fig. 2 shows the plots of $\tau_{max}$ versus per cent compaction developed from the 1950 study. Since tire pressures had not been included in the earlier (1946) analysis, values were assigned for the various loads, as shown in the legend in fig. 2, which represent the approximate tire pressures actually used. The plots of fig. 2 were then used with computed values of $\tau_{max}$ to determine compaction requirements for various single- and multiple-wheel assembly loads. This procedure was essentially a theoretical resolution of the 1945 data to cover the effects of multiple wheels and high tire pressures. This study produced the curves of compaction requirements (fig. 3) that were published in the 1951 issue of Part XII, Chapter 2, of the Engineering Manual for Military Construction.

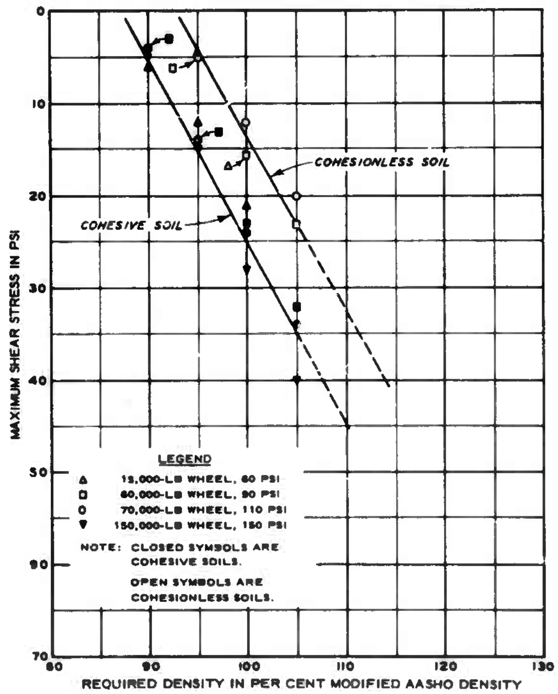


Fig. 2. Required density versus maximum shear stress

## Purpose and Scope of This Study

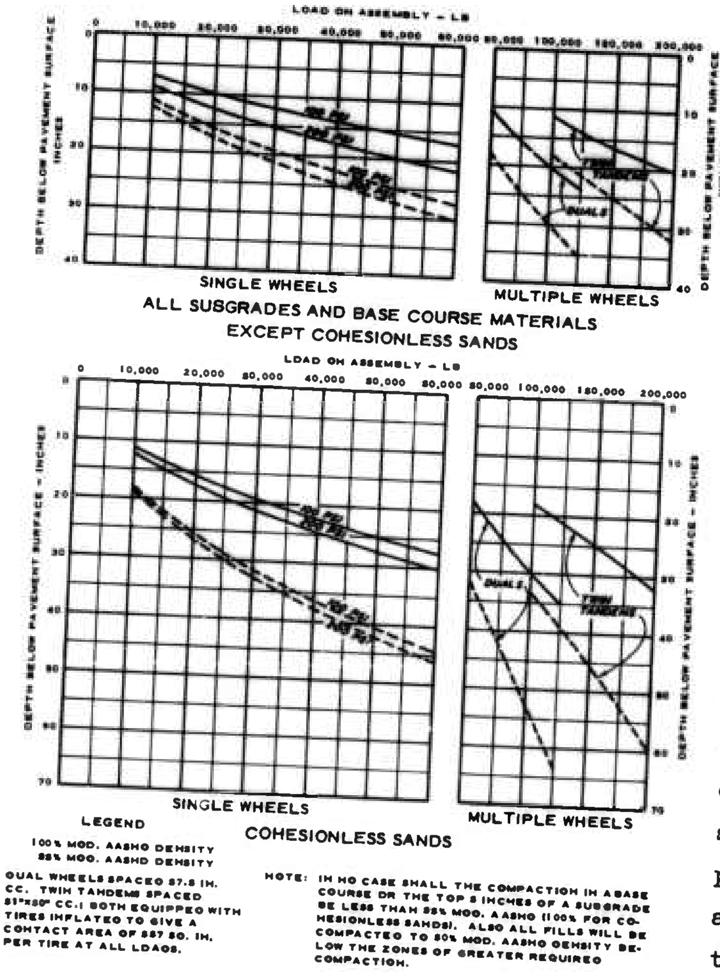


Fig. 3. Subgrade and base course compaction requirements

5. Since publication of the 1951 issue of Part XII, Chapter 2, of the Engineering Manual, it has been necessary to revise the compaction requirements to cover current aircraft gear configurations and loads. Also, it was considered that a review should be made of all information that had been collected that would bear on the problem. In general, the data reviewed came from two sources: observations of airfield pavements in actual service, and accelerated traffic tests on carefully controlled test sections. The reports from which the data were obtained are listed in "References" at the end of the text.

## New Treatment of Data

6. In 1958 a new issue of Part XII, Chapter 2, of the Engineering Manual was issued as Engineer Manual EM 1110-45-302, and contains compaction requirements derived from this study. In this new issue the use of curves to show compaction requirements has been abandoned in favor of a tabular presentation, similar to that illustrated in fig. 4. This treatment has been adopted primarily so that increased emphasis can be given to the need for very high degrees of compaction in the base course.

| Material | Percentage Compaction |
|---|---|
| | **Materials with Design CBR Values of 20 and above** |
| Base courses | Maximum that can be obtained, generally in excess of 100% of modified AASHO maximum and never less than 100%. |
| Subbases and subgrades | 100% of modified AASHO maximum except where it is known that a higher density can be obtained practicably, in which case the higher density should be required. |
| | **Materials with Design CBR Values below 20** |
| Select material and subgrades in fills | As shown below except that in no case will cohesionless fill be placed at less than 95% nor cohesive fill at less than 90%. |
| Subgrade in cuts | Subgrade in cuts must have natural densities equal to or greater than the values listed below. Where such is not the case, the subgrade must (a) be compacted from the surface to meet the tabulated densities, (b) be removed and replaced, in which case the requirements given above for fills apply, or (c) be covered with sufficient select material subbase and base so that the uncompacted subgrade is at a depth where the in-place densities are satisfactory. |

**Depth of Compaction for Select Materials and Subgrades**

| Type of Assembly | Gear Load, kip | Depth of Compaction in Feet for Per Cent Modified AASHO Compaction Shown | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Cohesionless Materials | | | | Cohesive Materials | | | | |
| | | 100 | 95 | 90 | 85 | 100 | 95 | 90 | 85 | 80 |
| **Heavy Load Pavements** | | | | | | | | | | |
| Twin assembly, 37-in. spacing, 267-sq-in. contact area | 50 | 2 | 3-1/2 | 5-1/2 | 7 | 1 | 2 | 3 | 4 | 5 |
| | 100 | 3 | 5-1/2 | 7-1/2 | 10 | 2 | 3 | 4-1/2 | 5-1/2 | 7 |
| | 150 | 4 | 6-1/2 | 9-1/2 | 12 | 2-1/2 | 4 | 5-1/2 | 7 | 8-1/2 |
| Twin-twin assembly, 37-62-37-in. spacing, 267-sq-in. contact area | 160 | 3-1/2 | 6 | 9 | 11-1/2 | 2 | 3 | 5 | 6-1/2 | 8 |
| | 240 | 4-1/2 | 8 | 11 | 15 | 2-1/2 | 4-1/2 | 6 | 8 | 10 |
| | 320 | 5-1/2 | 9 | 13 | ------ | 3 | 5-1/2 | 7-1/2 | 9-1/2 | 12 |
| **Light Load Pavements** | | | | | | | | | | |
| Single wheel, 100-sq-in. contact area | 10 | 1 | 1-1/2 | 2 | 2-1/2 | 1/2 | 1 | 1 | 1-1/2 | 2 |
| | 20 | 1-1/2 | 2 | 3 | 3-1/2 | 1 | 1-1/2 | 2 | 2 | 2-1/2 |
| | 25 | 1-1/2 | 2-1/2 | 3-1/2 | 4 | 1 | 1-1/2 | 2 | 2-1/2 | 3 |
| | 30 | 1-1/2 | 2-1/2 | 3-1/2 | 4-1/2 | 1 | 1-1/2 | 2 | 2-1/2 | 3-1/2 |
| **Miscellaneous** | | | | | | | | | | |
| Single wheel, 100-psi tire inflation | 10 | 1 | 1-1/2 | 2 | 2-1/2 | 1/2 | 1 | 1 | 1-1/2 | 2 |
| | 30 | 1-1/2 | 2-1/2 | 3-1/2 | 4-1/2 | 1 | 1-1/2 | 2 | 2-1/2 | 3 |
| | 50 | 2 | 3-1/2 | 4-1/2 | 6 | 1 | 2 | 2-1/2 | 3-1/2 | 4 |
| | 70 | 2-1/2 | 4 | 5-1/2 | 7 | 1-1/2 | 2-1/2 | 3 | 4 | 5 |

Fig. 4. Compaction requirements

# PART II: PRESENTATION OF DATA

## Sources of Data

7. The data used in this study were obtained from reports produced in connection with the following programs: (a) airfield pavement evaluations; (b) condition surveys; (c) field moisture content investigations; and (d) special test sections. To be of use in the study, data had to include the soil condition, position, and character (density, depth, and Atterberg limits), and the magnitude, intensity, and amount of loading (wheel load, tire pressure, assembly configuration, and volume of traffic).

## Arrangement

8. Data from 21 reports of the investigation programs listed in the preceding paragraph have been assembled in tables 1 and 2. The source report is listed first, followed by the assembly load data (magnitude, wheel arrangement and spacing, and tire pressure or contact area). Next are listed the depths at which samples were taken for the determination of densities, with the plasticity indexes and densities obtained shown opposite pertinent depths. Data are included only for test sections or airfield facilities that had been subjected to an appreciable amount of traffic of the assembly load listed. As will be seen later, the method of analysis adopted does not require a precise determination of traffic volume.

## Selection

9. Table 1 contains data considered to be of primary reliability, while table 2 contains data of secondary reliability. The data in table 1 were used to develop compaction requirements because they were obtained from carefully controlled test sections. The data in table 2 were considered only for verification since they are from studies of actual in-service facilities, where actual volume of traffic was not known and moisture content was not controlled.

## Definition of Compaction Index

10. Each layer in a pavement system is subjected to a compaction effort during each application of load. The magnitude of the compaction effort is a function of the geometry of the system and the characteristics of the materials between the pavement surface and the given layer. The parameters relating to the geometry of the system are: the total load, the contact pressure, the number and spacing of individual wheels, and the depth from the surface of the pavement to the layer being considered. The parameters regarding the characteristics of the materials betwe n the pavement surface and the given layer are not understood, and in this analysis it is assumed that differences in characteristics in the range found in normal flexible pavements produce no significant differences in compaction effort.

11. Analysis of the compaction requirements for each of the parameters related to the geometry of the system would require data covering a range of conditions for each parameter. The available data were not obtained for the purposes of this study, so the desired range for each parameter, to permit ready analysis, does not exist. Therefore, the parameters relating to the geometry of the system were combined into one variable. A ready-made combination of these parameters exists in the CBR design curves. The CBR required at a given depth for a particular wheel configuration, assembly load, and tire pressure is a number which reflects all the parameters related to the geometry of the system mentioned earlier. The design CBR has been used as the "compaction index" ($C_i$) in this report. As an example of its use, a 100-kip twin-wheel load, 37-in. c-c wheel spacing, 200-psi tire pressure, requires a CBR of 9 at a depth of 34 in. The compaction index, $C_i$, is therefore said to be 9. A 10-kip single-wheel load, 100-psi tire pressure, also requires a CBR of 9, but at a depth of 10 in. The compaction index for this condition is also indicated as 9. By use of the design CBR (labeled "compaction index" ($C_i$) to avoid confusion with thickness requirements) as a parameter to combine the geometrical parameters, it has been possible to utilize the available data even though they did not cover the desired range of conditions for each parameter.

12. Though it appears entirely logical to combine the geometrical parameters by use of the compaction index (design CBR), readily available means make a verification of the method desirable. Fig. 3 shows empirically developed compaction criteria in use prior to the advent of the analysis being reported here. For a given degree of compaction, various combinations of loading and thickness can be selected from this figure. Using these combinations of loading and thickness and appropriate CBR curves, such as that shown for 100-psi, single-wheel loadings in fig. A1, the CBR required in a design to support the loading subject to the selected conditions can be determined. Table 3 shows required CBR values, so determined, for combinations of loading and thickness from fig. 3. The resulting values for any single compaction requirement are very nearly alike regardless of individual load magnitude, tire pressure, or design thickness. Thus a verification of the compaction index has been provided from empirical data.

# PART III: ANALYSIS OF DATA

## Data Plots

13. By including the various parameters of loading and depth in terms of the single parameter, it is necessary to consider only the interrelation of density, compaction index, and soil type. Accordingly, plots were made of density versus $C_1$ in an attempt to establish a relation, as shown in figs. 5 and 6. The data plotted in these figures are those of primary reliability listed in table 1 (see paragraph 9).

## Consideration of Soil Type

14. It was first thought that soil type as expressed by the plasticity index (PI) would be a sufficiently critical parameter that it might be treated in a number of ranges, such as nonplastic, 0-5 PI, 5-10 PI, 10-25 PI, etc. On analysis, however, it was found that distinctions could not be made between the various ranges of plasticity, and that only the cohesionless (plasticity index zero or NP) and cohesive separation was warranted. This finding was partly due to the small differences between ranges and partly to the data being insufficient to establish such small differences.

## Assumption Used in This Study

15. It was assumed, for the purpose of this study, that the density found in a given test section or a given airfield facility after a given period of traffic would have been adequate to prevent densification during the given period of traffic if the density had been built into the material during construction.

## Limitations of the Analysis

16. Since tolerable amounts of settlement from compaction have not been established, the points shown in figs. 5 and 6 cannot be separated

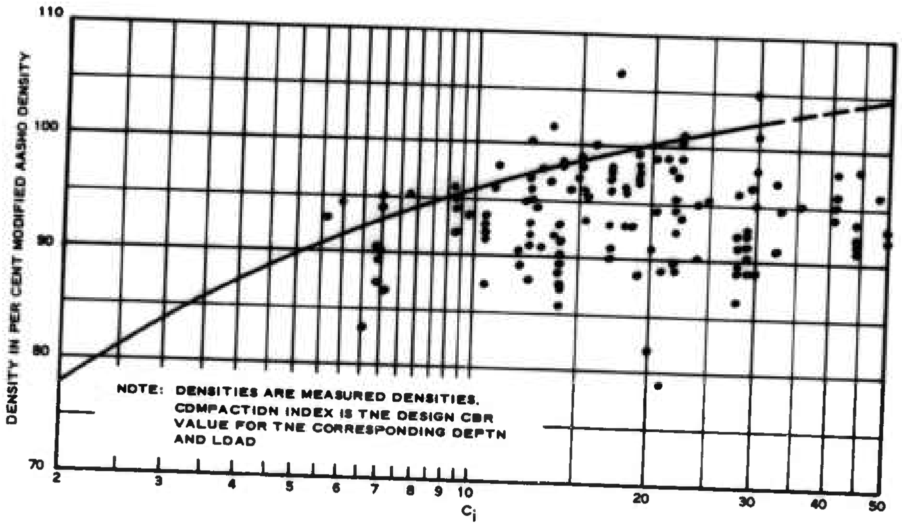


Fig. 5. Compaction requirements of cohesive (plastic) soils for flexible airfield pavements, table 1 data

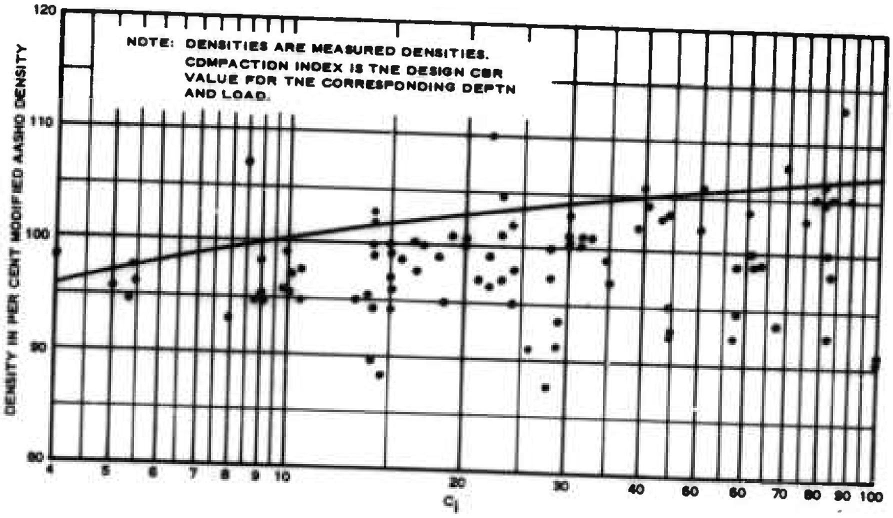


Fig. 6. Compaction requirements of cohesionless (NP) soils for flexible airfield pavements, table 1 data

into "acceptable" and "nonacceptable" categories with a dividing line drawn between them.. The points in figs. 5 and 6 that plot toward the lower densities (for a given compaction index) represent cases where the amount of compaction that occurred was small. This could easily be due to a low volume of traffic or a moisture content which was considerably dry (or wet) of optimum. The points that plot toward the higher densities, however, represent those cases where the volume of traffic was high and the moisture conditions were proper for compaction to occur. A limiting line, set high enough so that all points would fall below it, would be a completely safe limit; however, due to the inaccuracies involved in density sampling and in determining the proper reference density (modified AASHO), it is felt that such a limiting line would be unduly conservative. Also, some of the points lying in high positions may be due to unusually high densities developed during construction, or to naturally high densities, rather than to traffic. The lines shown in figs. 5 and 6 are intended to exclude the majority of the points. The shape of the curves was influenced to some degree by the pattern of density-depth-load relations which was in use prior to the time this study was made.

17. In fig. 5, which treats cohesive soils, the data for large values of the $C_i$ are distorted automatically by material strength requirements and resultant normal design practices. The high $C_i$ range is the range in which loadings applied to a test section or airfield would produce failure unless the materials involved had high strengths (CBR values). Cohesive materials at or near optimum moisture content do not normally have high strength. It follows that the cohesive materials for which data were obtained and which could be used in this analysis could not have been in the proper moisture condition to give maximum compaction. Test items which might have produced the greater densities properly representative of cohesive materials in this range of compaction effort failed under relatively few load repetitions and were not tested further. Thus, the points which should represent maximum compaction to be expected from high $C_i$ efforts have not been obtained. Therefore, data above a $C_i$ of 50 have not been plotted, and some of the points immediately below must remain in question.

## Plots of All Available Data

18. To verify the analysis based on the data of primary reliability from table 1, plots were made including the data of lesser reliability from table 2. These plots are shown in figs. 7 and 8 for cohesive and

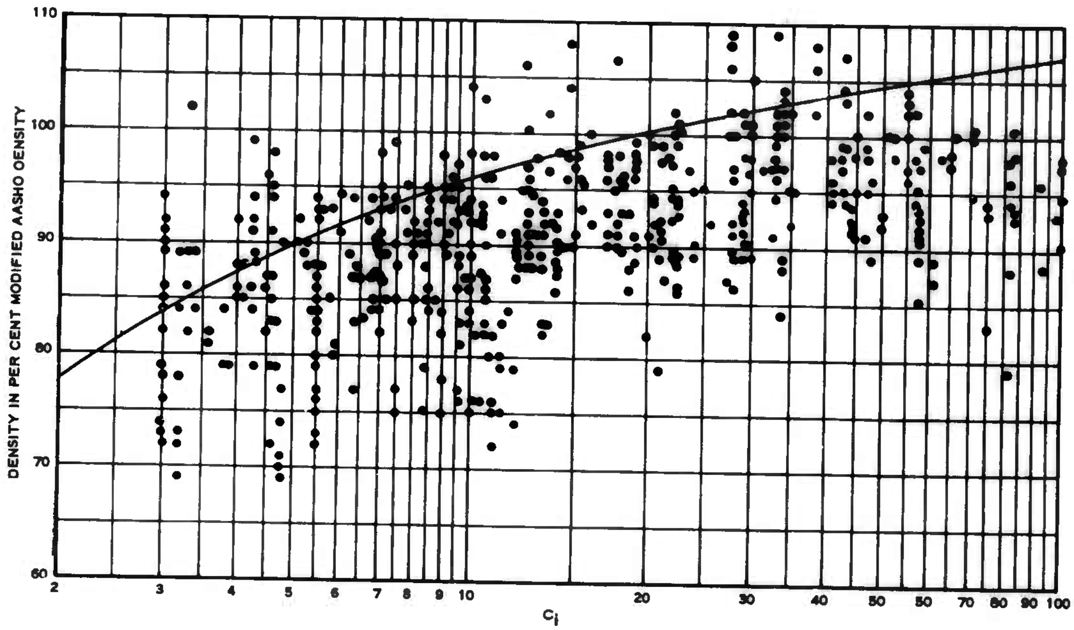


Fig. 7. Compaction requirements of cohesive (plastic) soils for flexible airfield pavements, all data

cohesionless materials, respectively. The curves in figs. 5 and 6 are included in figs. 7 and 8. In studying these figures, certain logical factors should be kept in mind. It is obvious, for instance, that compaction requirements must diminish with increasing depth. It follows that the degree of compaction must decrease with decreasing compaction index. It is also true that very high densities are ordinarily the result of compaction by large, intensive loadings. Therefore, the uppermost points in the right-hand portion in figs. 7 and 8 (the high $C_i$ range) must have resulted from compaction by aircraft traffic. On the other hand, densities

indicated by the uppermost points to the left were not necessarily the result of compaction by aircraft traffic. For instance, 90 to 95 per cent of modified AASHO maximum compaction is commonly required throughout fill sections, with 95 to 100 per cent compaction required in the top 6 in. of the subgrade. Also the natural subsoil beneath cut sections can have higher densities than those produced by aircraft using the overlying pavement. For these reasons, less importance has been attached to the high plotted points in the left-hand portion in figs. 7 and 8. The absence of points

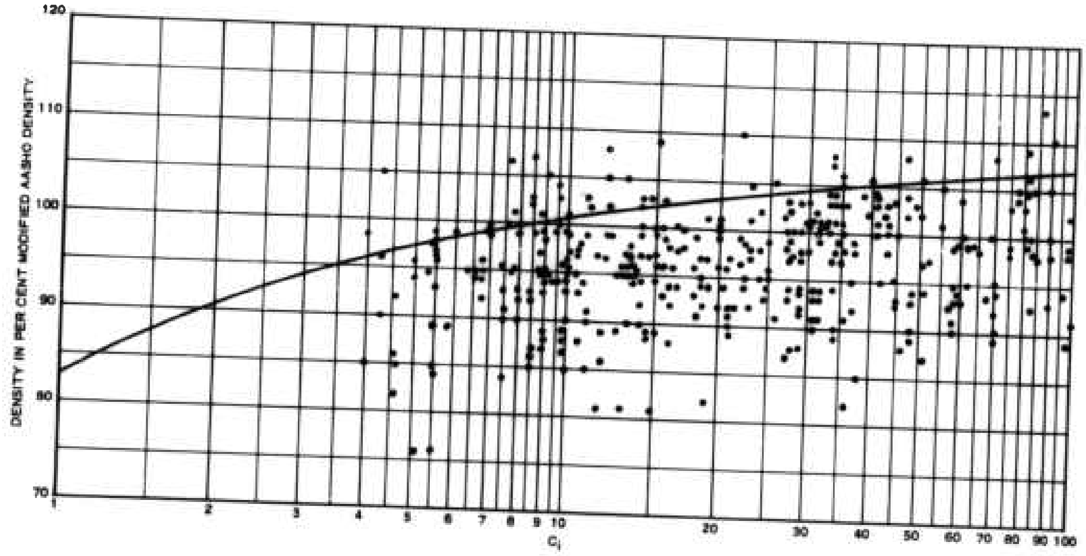


Fig. 8. Compaction requirements of cohesionless (NP) soils for flexible airfield pavements, all data

indicating high densities in the very high $C_i$ range in fig. 7 is due to the inability of cohesive materials to exhibit high strength at high moisture contents, as discussed in paragraph 17 in regard to fig. 5.

## Compaction Requirements

19. In fig. 9 the curves from figs. 5 and 6 are shown on a single plot. This plot can be used to determine compaction requirements criteria for any combination of loading, depth, and material. An example of such a determination is given in Appendix A.

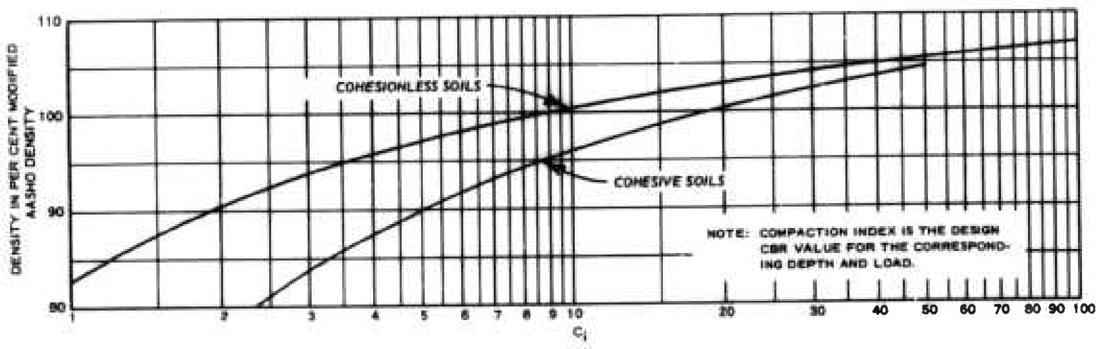


Fig. 9. Compaction requirements for flexible airfield pavements

## PART IV: RESULTS

20. This study showed that the compaction index ($C_i$) provides a means of combining into a single parameter the variables of load, tire pressure (or contact area), wheel configuration, and depth for determination of the compaction required in the various layers of flexible pavements for airfields.

21. Also from this analysis relations have been developed between compaction index and required compaction (per cent of modified AASHO maximum density) for base, subbase, and subgrade materials for flexible pavements. These are separated, for the purposes of the relations, into cohesionless and cohesive materials.

REFERENCES


1. U. S. Army Engineer District, Mobile, CE, Accelerated Traffic Tests, Eglin Field, Florida. Vicksburg, Miss., January 1945.

2. __________, Sacramento, CE, and O. J. Porter and Co., Consulting Engineers, Sacramento, Calif., Accelerated Traffic Tests, Test No. 2 Stockton Airfield, Stockton, California. Sacramento, California, May 1948.

3. U. S. Army Engineer Waterways Experiment Station, CE, Certain Requirements for Flexible Pavement Design for B-29 Planes. Vicksburg, Miss., August 1945.

4. __________, Flexible Pavement Behavior Studies. Interim Report No. 2 (unnumbered), Vicksburg, Miss., May 1947.

5. __________, Investigation of the Design and Control of Asphalt Paving Mixtures. Technical Memorandum No. 3-254, Vicksburg, Miss., May 1948.

6. __________, Investigation of Effects of Traffic With High-pressure Tires on Asphalt Pavements. Technical Memorandum No. 3-312, Vicksburg, Miss., May 1950.

7. __________, Design of Flexible Airfield Pavements for Multiple-wheel Landing Gear Assemblies; Test Section With Lean Clay Subgrade. Technical Memorandum No. 3-349, Report No. 1, Vicksburg, Miss., September 1952.

8. __________, Condition Survey, Pope Air Force Base, Fort Bragg, North Carolina. Miscellaneous Paper No. 4-3, Report No. 2, Vicksburg, Miss., October 1952.

9. __________, Condition Survey, Lawson Air Force Base, Fort Benning, Georgia. Miscellaneous Paper No. 4-3, Report No. 3, Vicksburg, Miss., November 1952.

10. __________, Airfield Pavement Evaluation, Campbell Air Force Base, Kentucky. Technical Memorandum No. 3-344, Report No. 1, Vicksburg, Miss., January 1953.

11. __________, Condition Survey, Ardmore Air Force Base, Ardmore, Oklahoma. Miscellaneous Paper No. 4-3, Report No. 4, Vicksburg, Miss., March 1953.

12. __________, Condition Survey, Eglin Air Force Base, Valparaiso, Florida. Miscellaneous Paper No. 4-3, Report No. 5, Vicksburg Miss., June 1953.

13. U. S. Army Engineer Waterways Experiment Station, CE, Airfield Pavement Evaluation, Palm Beach International Airport, Florida. Technical Memorandum No. 3-344, Report No. 6, Vicksburg, Miss., October 1953.

14. ________, Tar-rubber Test Section at Waterways Experiment Station, Design and Construction of Test Section. Technical Memorandum No. 3-372, Report No. 1, Vicksburg, Miss., November 1953.

15. ________, Airfield Pavement Evaluation, Sheppard Air Force Base, Wichita Falls, Texas. Technical Memorandum No. 3-344, Report No. 2, Vicksburg, Miss., December 1953.

16. ________, Airfield Pavement Evaluation, Boca Raton Airfield, Florida. Technical Memorandum No. 3-344, Report No. 3, Vicksburg, Miss., December 1953.

17. ________, Airfield Pavement Evaluation, Davis-Monthan Air Force Base, Tucson, Arizona. Technical Memorandum No. 3-344, Report No. 4, Vicksburg, Miss., December 1953.

18. ________, Design of Upper Base Courses for High-pressure Tires, Base Course Requirements as Related to Contact Pressures. Technical Memorandum No. 3-373, Report No. 1, Vicksburg, Miss., December 1953.

19. ________, Unpublished tables from the Field Moisture Content Investigation: "Summary of results of soil tests and observations of pavement behavior."

20. ________, Pavement Mix Design Study for Very Heavy Gear Loads, Pilot Test Section. Unpublished draft, January 1957.

21. ________, Unpublished data from Columbus Air Force Base test section, 1958.

Table 1

Accelerated Traffic Test Compaction Results

| Depth from Surface in. | Plasticity Index | Per Cent Mod AASHO Density | Compaction Index* |
|---|---|---|---|
| A. Source of Data: | Pavement Mix Design Study for Very Heavy Gear Loads; Pilot Test Section (DRAFT), Jan 1957 | | |
| Assembly Load: | 240,000 lb | | |
| Assembly Type: | Twin tandem, spacing 31 x 60 in., 267-sq-in. contact area | | |
| 4.0 | NP | 104.7 | 81.0 |
| 10.5 | NP | 105.9 | 50.4 |
| 14.5 | NP | 105.8 | 40.0 |
| 35.0 | 28 | 92.0 | 13.8 |
| 38.0 | 28 | 89.2 | 12.0 |
| 58.0 | 28 | 83.2 | 6.6 |
| 4.0 | NP | 106.2 | 81.0 |
| 8.0 | NP | 103.6 | 60.5 |
| 14.0 | NP | 104.1 | 40.5 |
| B. Source of Data: | Unpublished data from Columbus AFB test section, 1958 | | |
| Assembly Load: | 212,000 lb | | |
| Assembly Type: | Twin twin, 37-62-37-in. spacing, 267-sq-in. contact area, bicycle-type gear | | |
| 4.0 | NP | 105.0 | 83.0 |
| 12.0 | NP | 103.6 | 44.0 |
| 17.0 | NP | 101.0 | 30.0 |
| 21.0 | NP | 104.8 | 23.0 |
| 25.5 | 18 | 106.9 | 17.5 |
| 31.5 | P | 101.7 | 13.5 |
| C. Source of Data: | Investigation of Effects of Traffic With High Pressure Tires on Asphalt Pavements, TM 3-312, May 1950 | | |
| Assembly Load: | 30,000 lb | | |
| Assembly Type: | Single, 200-psi tire pressure | | |
| 16.0 | 23 | 100.3 | 12.5 |
| 12.0 | 23 | 99.3 | 19.0 |
| 12.0 | 23 | 98.1 | 19.0 |
| 12.0 | 23 | 98.2 | 19.0 |
| 12.0 | 23 | 97.4 | 19.0 |
| 12.0 | 23 | 97.0 | 19.0 |
| Assembly Load: | 120,000 lb | | |
| Assembly Type: | Twin tandem, 31 x 60 in. | | |
| 13.0 | 23 | 99.0 | 22.5 |
| 13.0 | 23 | 99.0 | 22.5 |
| 13.0 | 23 | 100.5 | 22.5 |
| 13.0 | 23 | 93.8 | 22.5 |
| 12.0 | 23 | 95.3 | 25.0 |
| D. Source of Data: | Investigation of the Design and Control of Asphalt Paving Mixtures, TM 3-254 | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 50-psi tire pressure | | |
| 1.5 | 7 | 93.0 | 50.0 |
| 1.5 | 7 | 92.0 | 50.0 |
| 3.0 | 7 | 98.0 | 30.0 |
| 3.0 | 7 | 95.0 | 30.0 |
| 3.0 | 7 | 105.0 | 30.0 |
| 5.0 | 7 | 93.0 | 18.5 |
| 3.0 | NP | 103.0 | 30.0 |
| 4.0 | NP | 98.0 | 24.0 |
| 6.0 | NP | 96.0 | 15.0 |
| 6.0 | NP | 97.0 | 15.0 |
| 6.0 | NP | 97.0 | 15.0 |
| 6.0 | NP | 99.0 | 15.0 |
| 6.0 | NP | 96.0 | 15.0 |
| 6.0 | NP | 96.0 | 15.0 |
| 0.8 | NP | 108.0 | 70.0 |
| 2.0 | P** | 94.0 | 41.0 |
| 2.0 | P | 95.0 | 41.0 |
| 2.0 | P | 96.0 | 41.0 |
| 2.0 | P | 98.0 | 41.0 |
| 6.5 | 7 | 93.0 | 14.0 |
| 6.5 | NP | 99.0 | 14.0 |
| 6.5 | NP | 93.0 | 14.0 |
| 6.5 | NP | 99.0 | 14.0 |
| 6.0 | NP | 98.0 | 14.0 |
| 6.0 | NP | 100.0 | 15.0 |
| 7.0 | NP | 95.0 | 13.0 |
| 6.5 | NP | 100.0 | 14.0 |
| 6.5 | NP | 103.0 | 14.0 |
| 6.5 | NP | 102.0 | 14.0 |
| 6.5 | NP | 100.0 | 14.0 |
| 6.5 | NP | 102.0 | 14.0 |
| 9.0 | 28 | 93.0 | 9.3 |
| 9.0 | 28 | 96.0 | 9.3 |
| 9.0 | 28 | 95.0 | 9.3 |
| 9.0 | 28 | 94.0 | 9.3 |
| 9.0 | 28 | 95.0 | 9.3 |
| 9.0 | 28 | 96.0 | 9.3 |
| 9.0 | 28 | 94.C | 9.3 |
| 9.0 | 28 | 94.0 | 9.3 |
| 9.0 | 28 | 96.0 | 9.3 |
| 9.0 | 28 | 96.0 | 9.3 |
| 9.0 | 28 | 95.0 | 9.3 |
| 9.0 | 28 | 94.0 | 9.3 |
| 9.0 | 28 | 92.0 | 9.3 |
| 9.0 | 28 | 95.0 | 9.3 |
| 9.0 | 28 | 92.0 | 9.3 |
| 9.0 | 28 | 96.0 | 9.3 |
| 11.0 | 28 | 94.0 | 7.0 |
| 11.0 | 28 | 95.0 | 7.0 |
| 11.0 | 28 | 95.0 | 7.0 |
| D. (Continued) | | | |
| Assembly Load: | 37,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 1.5 | 7 | 93.0 | 98.0 |
| 3.0 | 7 | 98.0 | 63.0 |
| 3.0 | NP | 99.0 | 63.0 |
| 5.0 | NP | 93.0 | 45.0 |
| 2.0 | NP | 100.0 | 82.0 |
| 6.0 | NP | 102.0 | 39.0 |
| 2.0 | P | 79.0 | 82.0 |
| 2.0 | P | 88.0 | 82.0 |
| 2.0 | P | 98.0 | 82.0 |
| 2.0 | P | 94.0 | 82.0 |
| 2.0 | P | 96.0 | 82.0 |
| 7.25 | 7 | 91.0 | 32.5 |
| 8.0 | 7 | 89.0 | 30.0 |
| 7.25 | NP | 101.0 | 32.5 |
| 8.0 | NP | 101.0 | 30.0 |
| 8.0 | NP | 101.0 | 30.0 |
| 9.0 | NP | 91.0 | 26.0 |
| 7.5 | NP | 101.0 | 31.5 |
| 8.5 | NP | 100.0 | 28.0 |
| 9.5 | NP | 102.0 | 24.0 |
| 6.5 | P | 95.0 | 35.5 |
| 13.0 | 28 | 91.0 | 17.0 |
| 13.0 | 28 | 90.0 | 17.0 |
| 13.0 | 28 | 98.0 | 17.0 |
| 13.0 | 28 | 93.0 | 17.0 |
| 13.0 | 28 | 97.0 | 17.0 |
| 13.0 | 28 | 90.0 | 17.0 |
| 13.0 | 28 | 96.0 | 17.0 |
| 13.0 | 28 | 97.0 | 17.0 |
| 13.0 | 28 | 96.0 | 17.0 |
| 11.0 | 28 | 82.0 | 20.0 |
| 11.0 | 28 | 91.0 | 20.0 |
| 0. (Continued) | | | |
| Assembly Load: | 60,000 lb | | |
| Assembly Type: | Twin, 37 in. c-c, 360-sq-in. contact area | | |
| 3.0 | 7 | 87.0 | 61.0 |
| 3.0 | 7 | 89.0 | 61.0 |
| 3.0 | NP | 100.0 | 61.0 |
| 2.0 | P | 93.0 | 75.0 |
| 2.0 | P | 94.0 | 75.0 |
| 2.0 | P | 94.0 | 75.0 |
| 2.0 | P | 83.0 | 75.0 |
| 2.0 | P | 94.0 | 75.0 |
| 8.75 | 7 | 95.0 | 24.0 |
| 9.5 | 7 | 89.0 | 21.0 |
| 9.5 | 7 | 79.0 | 21.0 |
| 6.75 | NP | 98.0 | 24.0 |
| 8.75 | NP | 102.0 | 24.0 |
| 8.75 | NP | 95.0 | 24.0 |
| 9.5 | NP | 97.0 | 21.0 |
| 10.5 | NP | 101.0 | 19.0 |
| 9.0 | NP | 101.0 | 23.0 |
| 9.0 | NP | 101.0 | 23.0 |
| 9.0 | NP | 97.0 | 23.0 |
| 10.0 | NP | 100.0 | 20.0 |
| 11.0 | NP | 99.0 | 18.0 |
| 11.0 | NP | 99.0 | 18.0 |
| 4.9 | NP | 103.0 | 43.0 |
| 16.0 | 28 | 97.0 | 12.5 |
| 16.0 | 28 | 93.0 | 12.5 |
| 16.0 | 28 | 95.0 | 12.5 |
| 16.0 | 28 | 91.0 | 12.5 |
| 16.0 | 28 | 96.0 | 12.5 |
| 16.0 | 28 | 93.0 | 12.5 |
| 16.0 | 28 | 88.0 | 12.5 |
| 16.0 | 28 | 96.0 | 12.5 |
| 16.0 | 28 | 96.0 | 12.5 |
| 16.0 | 28 | 88.0 | 12.5 |
| 16.0 | 28 | 95.0 | 12.5 |
| 16.0 | 28 | 96.0 | 12.5 |
| 16.0 | 28 | 93.0 | 12.5 |
| 16.0 | 28 | 92.0 | 12.5 |
| 16.0 | 28 | 92.0 | 12.5 |
| 16.2 | 28 | 95.0 | 12.3 |
| 11.0 | 28 | 96.0 | 18.0 |
| 11.0 | 28 | 93.0 | 18.0 |

082459A

* The compaction index is the design CBR value for the corresponding load and depth.
** Plastic, exact Atterberg limits unknown.

Table 2

Field Compaction Data for Flexible Airfield Pavements

| Depth from Surface in. | Plasticity Index | Per Cent Mod AASHO Density | Compaction Index* |
|---|---|---|---|
| A. Source of Data: | Condition Survey, Report No. 2, Pope Air Force Base, Fort Bragg, North Carolina, MP 4-3 | | |
| Assembly Load: | 13,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.0 | NP | 95.0 | 37.0 |
| 3.0 | NP | 93.0 | 48.0 |
| 9.0 | 7 | 83.0 | 13.5 |
| 21.0 | 13 | 84.0 | 3.4 |
| 20.0 | NP | 85.0 | 3.8 |
| 8.0 | NP | 81.0 | 15.0 |
| B. Source of Data: | Condition Survey, Report No. 5, Eglin Air Force Base, Valparaiso, Florida, MP 4-3 | | |
| Assembly Load: | 30,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 8.0 | NP | 101.5 | 27.0 |
| 15.0 | NP | 96.9 | 11.5 |
| 4.0 | NP | 97.2 | 52.0 |
| 16.0 | NP | 94.9 | 10.5 |
| 8.0 | NP | 98.2 | 27.0 |
| Assembly Load: | 96,000 lb | | |
| Assembly Type: | Dual, 37 in. c-c, 267-sq-in. contact area | | |
| 20.0 | NP | 102.7 | 15.5 |
| 15.0 | NP | 98.5 | 22.5 |
| 24.0 | NP | 96.7 | 12.0 |
| 36.0 | NP | 92.0 | 6.8 |
| C. Source of Data: | Airfield Pavement Evaluation, Report No. 3, Boca Raton Airfield, Florida, TM 3-344 | | |
| Assembly Load: | 62,000 lb | | |
| Assembly Type: | Dual, 37 in. c-c, 360-sq-in. contact area | | |
| 11.0 | NP | 96.0 | 17.8 |
| 25.5 | NP | 96.0 | 6.8 |
| 10.5 | NP | 94.0 | 18.5 |
| 24.0 | NP | 84.0 | 7.5 |
| 10.75 | NP | 91.0 | 18.1 |
| 10.0 | NP | 96.0 | 20.7 |
| 24.0 | NP | 91.0 | 7.5 |
| 11.0 | NP | 96.0 | 17.8 |
| 24.0 | NP | 93.0 | 7.5 |
| D. Source of Data: | Condition Survey, Report No. 3, Lawson Air Force Base, Fort Benning, Georgia, MP 4-3 | | |
| Assembly Load: | 13,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 3.0 | 6 | 89.0 | 48.0 |
| 3.0 | 11 | 89.0 | 48.0 |
| 3.0 | NP | 89.0 | 48.0 |
| 3.0 | NP | 89.0 | 48.0 |
| 3.0 | NP | 90.0 | 48.0 |
| 3.0 | NP | 89.0 | 48.0 |
| 3.0 | NP | 89.0 | 48.0 |
| 11.0 | NP | 89.0 | 9.75 |
| 11.0 | NP | 88.0 | 9.75 |
| 12.0 | NP | 93.0 | 8.5 |
| 12.0 | NP | 92.0 | 8.5 |
| 10.0 | NP | 90.0 | 11.0 |
| 10.0 | NP | 85.0 | 11.0 |
| 12.0 | NP | 85.0 | 8.5 |
| E. Source of Data: | Condition Survey, Report No. 4, Ardmore Air Force Base, Ardmore, Oklahoma, MP 4-3 | | |
| Assembly Load: | 22,500 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 3.0 | 10 | 102.0 | 57.0 |
| 3.0 | 6 | 98.0 | 57.0 |
| 16.0 | 11 | 92.0 | 8.5 |
| 14.0 | 8 | 89.0 | 10.0 |
| F. Source of Data: | Airfield Pavement Evaluation, Report No. 6, Palm Beach International Airport, Florida, TM 3-344 | | |
| Assembly Load: | 79,000 lb | | |
| Assembly Type: | Dual, 37 in. c-c, 267-sq-in. contact area | | |
| 3.0 | NP | 99.0 | 81.0 |
| 3.0 | NP | 100.0 | 81.0 |
| 7.0 | NP | 95.0 | 42.0 |
| 4.75 | NP | 93.0 | 60.0 |
| 2.0 | NP | 94.0 | 96.0 |
| 4.5 | NP | 95.0 | 62.0 |
| 3.5 | NP | 98.0 | 75.0 |
| 3.0 | NP | 101.0 | 80.0 |
| 3.0 | NP | 103.0 | 80.0 |
| 3.25 | NP | 104.0 | 78.0 |
| 4.0 | NP | 100.0 | 69.0 |
| 6.0 | NP | 103.0 | 49.0 |
| 3.5 | NP | 99.0 | 75.0 |
| 13.0 | NP | 89.0 | 21.0 |
| 13.5 | NP | 92.0 | 20.0 |
| 13.0 | NP | 92.0 | 21.0 |
| 13.0 | NP | 90.0 | 21.0 |
| 13.0 | NP | 91.0 | 21.0 |
| 11.5 | NP | 92.0 | 23.0 |
| F. (Continued) | | | |
| 21.0 | NP | 102.0 | 12.0 |
| 33.0 | NP | 95.0 | 6.4 |
| 14.5 | NP | 92.0 | 18.5 |
| 26.5 | NP | 95.0 | 8.8 |
| 17.5 | NP | 89.0 | 15.0 |
| 29.5 | NP | 90.0 | 7.5 |
| 8.0 | NP | 82.0 | 36.0 |
| 20.0 | NP | 81.0 | 13.0 |
| 11.0 | NP | 93.0 | 24.5 |
| 23.0 | NP | 91.0 | 11.0 |
| 14.0 | NP | 97.0 | 19.0 |
| 26.0 | NP | 94.0 | 9.0 |
| 19.0 | NP | 95.0 | 13.5 |
| 31.0 | NP | 94.0 | 6.6 |
| 11.5 | NP | 98.0 | 23.0 |
| 23.5 | NP | 97.0 | 10.5 |
| 19.0 | NP | 95.0 | 13.5 |
| 31.0 | NP | 95.0 | 6.6 |
| 17.0 | NP | 93.0 | 15.5 |
| 29.0 | NP | 95.0 | 7.75 |
| 17.0 | NP | 100.0 | 15.5 |
| 29.0 | NP | 101.0 | 7.75 |
| 14.5 | NP | 97.0 | 18.5 |
| 26.5 | NP | 97.0 | 8.8 |
| 16.5 | NP | 98.0 | 16.0 |
| 28.5 | NP | 90.0 | 8.0 |
| 12.0 | NP | 95.0 | 22.5 |
| 24.0 | NP | 94.0 | 10.0 |
| 13.5 | NP | 101.0 | 20.0 |
| 25.5 | NP | 94.0 | 9.4 |
| G. Source of Data: | Airfield Pavement Evaluation, Report No. 2, Sheppard Air Force Base, Wichita Falls, Texas, TM 3-344 | | |
| Assembly Load: | 15,750 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 3.0 | 8 | 100.0 | 51.0 |
| 12.0 | NP | 87.0 | 9.8 |
| 3.0 | NP | 94.0 | 51.0 |
| 2.0 | 7 | 100.0 | 66.0 |
| 9.0 | NP | 89.0 | 14.5 |
| 2.5 | NP | 90.0 | 58.0 |
| 3.0 | NP | 97.0 | 51.0 |
| 20.0 | 7 | 79.0 | 4.3 |
| 14.5 | 11 | 94.0 | 7.4 |
| 23.0 | 18 | 89.0 | 3.3 |
| 13.0 | 18 | 85.0 | 8.8 |
| 15.0 | 28 | 89.0 | 7.0 |
| 2.5 | NP | 91.0 | 58.0 |
| 3.0 | NP | 87.0 | 51.0 |
| 2.5 | NP | 93.0 | 58.0 |
| 12.0 | 17 | 93.0 | 9.8 |
| 13.5 | 20 | 91.0 | 8.2 |
| 14.0 | 17 | 93.0 | 7.7 |
| H. Source of Data: | Airfield Pavement Evaluation, Report No. 4, Davis-Monthan Air Force Base, Tuscon, Arizona, TM 3-344 | | |
| Assembly Load: | 74,400 lb | | |
| Assembly Type: | Dual, 37 in. c-c, 267-sq-in. contact area | | |
| 3.5 | 15 | 94.7 | 71.0 |
| 3.5 | 4 | 99.7 | 71.0 |
| 4.0 | 10 | 98.5 | 65.0 |
| 4.0 | 18 | 97.3 | 65.0 |
| 2.5 | NP | 97.9 | 85.0 |
| 4.0 | NP | 98.4 | 65.0 |
| 3.5 | 11 | 100.7 | 71.0 |
| 11.5 | 20 | 86.3 | 22.5 |
| 11.5 | 11 | 92.7 | 22.5 |
| 12.0 | 17 | 92.2 | 21.0 |
| 11.0 | 19 | 96.9 | 23.5 |
| 11.5 | 23 | 88.3 | 22.5 |
| 12.0 | 12 | 90.2 | 21.0 |
| 14.0 | 12 | 89.6 | 18.0 |
| 12.0 | 13 | 90.3 | 21.0 |
| 12.0 | 12 | 91.4 | 21.0 |
| 12.0 | 8 | 97.6 | 21.0 |
| 14.0 | 13 | 95.5 | 18.0 |
| I. Source of Data: | Flexible Pavement Behavior Studies, Interim Report No. 2 | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 15.0 | NP | 92.0 | 6.75 |
| 15.0 | NP | 94.0 | 6.75 |
| 15.0 | NP | 95.0 | 6.75 |
| 15.0 | 7 | 94.0 | 6.75 |
| 20.0 | 44 | 86.0 | 4.0 |
| 20.0 | 44 | 92.0 | 4.0 |
| 15.0 | 37 | 87.0 | 6.75 |
| 15.0 | 11 | 84.0 | 6.75 |
| 15.0 | 13 | 94.0 | 6.75 |
| 19.0 | 32 | 86.0 | 4.5 |
| 12.0 | 13 | 92.0 | 9.5 |
| 13.0 | 1 | 86.0 | 8.5 |
| 17.0 | 8 | 75.0 | 5.5 |
| 13.0 | 1 | 94.0 | 8.5 |
| 13.0 | 6 | 94.0 | 8.5 |
| Assembly Load: | 16,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 11.0 | 17 | 79.0 | 12.0 |
| 11.0 | 16 | 91.0 | 12.0 |
| 19.0 | 20 | 69.0 | 4.8 |
| 24.0 | 20 | 73.0 | 3.2 |
| 19.0 | 18 | 74.0 | 4.8 |
| 24.0 | 18 | 72.0 | 3.2 |

(Continued)

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* The compaction index is the design CBR value for the corresponding load and depth.

(Sheet 1 of 6 sheets)

Table 2 (Continued)

| Depth from Surface in. | Plasticity Index | Per Cent Mod AASHO Density | Compaction Index |
|---|---|---|---|
| I. (Continued) | | | |
| Assembly Load: | 17,500 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 16.0 | 20 | 85.0 | 6.8 |
| 13.0 | 11 | 88.0 | 9.5 |
| 14.0 | 16 | 84.0 | 8.5 |
| 25.0 | 17 | 69.0 | 3.2 |
| 22.0 | 10 | 79.0 | 3.9 |
| 25.0 | 15 | 78.0 | 3.2 |
| Assembly Load: | 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 15.0 | 20 | 87.0 | 10.0 |
| 24.0 | 20 | 79.0 | 4.7 |
| 15.0 | 20 | 90.0 | 10.0 |
| 24.0 | 20 | 83.0 | 4.7 |
| 20.0 | 9 | 83.0 | 6.4 |
| 26.0 | 9 | 85.0 | 4.0 |
| 17.0 | 2 | 90.0 | 8.3 |
| 13.0 | 9 | 106.0 | 12.3 |
| 15.0 | 14 | 94.0 | 10.0 |
| 15.0 | 7 | 84.0 | 10.0 |
| 15.0 | 7 | 104.0 | 10.0 |
| 14.0 | 15 | 75.0 | 11.0 |
| 15.0 | 5 | 75.0 | 10.0 |
| J. Source of Data: | Airfield Pavement Evaluation [redacted] Force Base, [redacted] | | |
| Assembly Load: | [redacted] | | |
| Assembly Type: | Twin tandem, 31 x 60 in. c-c, 267-sq-in. contact area | | |
| 12.5 | 29 | 89.0 | 22.5 |
| 24.5 | P | 72.0 | 11.0 |
| 32.0 | 36 | 91.0 | 7.75 |
| 40.0 | P* | 88.0 | 5.6 |
| 13.0 | P | 87.0 | 21.4 |
| 25.0 | P | 80.0 | 10.8 |
| 11.5 | P | 89.0 | 24.0 |
| 23.5 | P | 84.0 | 11.7 |
| 13.5 | P | 94.0 | 20.5 |
| 25.5 | P | 82.0 | 10.6 |
| 13.5 | P | 90.0 | 20.5 |
| 25.5 | P | 83.0 | 10.6 |
| 30.0 | P | 88.0 | 8.4 |
| 42.0 | P | 88.0 | 5.3 |
| 28.0 | 34 | 91.0 | 9.2 |
| 40.0 | P | 88.0 | 5.6 |
| 10.5 | 26 | 92.0 | 25.5 |
| 22.5 | P | 88.0 | 12.2 |
| 31.5 | 18 | 91.0 | 7.9 |
| 14.5 | P | 90.0 | 19.2 |
| 26.5 | P | 87.0 | 9.8 |
| 30.0 | P | 95.0 | 8.4 |
| 42.0 | P | 90.0 | 5.3 |
| 3.0 | NP | 89.0 | 98.0 |
| 3.5 | NP | 100.0 | 90.0 |
| 14.0 | NP | 96.0 | 20.0 |
| 4.5 | NP | 105.0 | 55.0 |
| J. (Continued) | | | |
| 3.0 | NP | 102.0 | 98.0 |
| 3.0 | NP | 98.0 | 98.0 |
| 3.0 | NP | 99.0 | 98.0 |
| 3.5 | NP | 99.0 | 90.0 |
| 12.5 | NP | 94.0 | 22.5 |
| 3.5 | NP | 98.0 | 90.0 |
| 13.0 | NP | 93.0 | 21.4 |
| 18.5 | NP | 96.0 | 15.5 |
| 3.5 | NP | 110.0 | 90.0 |
| 3.5 | NP | 93.0 | 90.0 |
| 14.0 | NP | 100.0 | 20.0 |
| 21.0 | NP | 94.0 | 13.5 |
| 2.5 | NP | 109.0 | 81.0 |
| 4.5 | NP | 101.0 | 55.0 |
| 14.0 | NP | 99.0 | 20.0 |
| K. Source of Data: | Field Moisture Content Investigation Unpublished Data | | |
| Field: | Ardmore Air Force Base | | |
| Facility: | NS runway | | |
| Assembly Load: | 22,000 lb | | |
| Assembly Type | Single, 100-psi tire pressure | | |
| 5.5 | 10 | 102.0 | 33.0 |
| 5.5 | 6 | 98.0 | 33.0 |
| 19.0 | CL | 89.0 | 6.25 |
| Field: | Bergstrom Air Force Base | | |
| Facility: | NW-SE runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 1 | 104.0 | 34.0 |
| 4.5 | 1 | 101.0 | 34.0 |
| 14.5 | NP | 92.0 | 7.0 |
| 19.5 | 44 | 86.0 | 4.25 |
| 24.0 | 44 | 85.0 | 3.0 |
| 4.5 | 1 | 101.0 | 34.0 |
| 14.5 | NP | 90.0 | 7.0 |
| 19.5 | 44 | 86.0 | 4.25 |
| 24.0 | 44 | 84.0 | 3.0 |
| 4.5 | 1 | 104.0 | 34.0 |
| 14.5 | NP | 89.0 | 7.0 |
| 19.5 | 44 | 94.0 | 4.25 |
| 24.0 | 44 | 94.0 | 3.0 |
| 4.5 | 1 | 104.0 | 34.0 |
| 14.5 | NP | 94.0 | 7.0 |
| 19.5 | 44 | 92.0 | 4.25 |
| 24.0 | 44 | 91.0 | 3.0 |
| 4.5 | 1 | 104.0 | 34.0 |
| 19.5 | 44 | 94.0 | 4.25 |
| 24.0 | 44 | 86.0 | 3.0 |
| 4.5 | 1 | 97.0 | 34.0 |
| 14.5 | NP | 95.0 | 7.0 |
| 19.5 | 44 | 92.0 | 4.25 |
| 24.0 | 44 | 92.0 | 3.0 |
| K. (Continued) | | | |
| Facility: | Taxiway 1 | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 3 | 104.0 | 34.0 |
| 14.5 | 7 | 94.0 | 7.0 |
| 19.5 | 39 | 86.0 | 4.25 |
| 24.0 | 39 | 85.0 | 3.0 |
| 4.5 | 2 | 100.0 | 34.0 |
| 14.5 | 8 | 91.0 | 7.0 |
| 19.5 | 38 | 84.0 | 4.25 |
| 24.0 | 38 | 82.0 | 3.0 |
| Facility: | E-W runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 1 | 102.0 | 34.0 |
| 14.5 | 7 | 89.0 | 7.0 |
| 19.5 | 31 | 91.0 | 4.25 |
| 4.5 | 1 | 102.0 | 34.0 |
| 14.5 | 8 | 93.0 | 7.0 |
| 19.5 | 53 | 99.0 | 4.25 |
| 4.5 | NP | 108.0 | 34.0 |
| 14.5 | 4 | 90.0 | 7.0 |
| 19.5 | 38 | 94.0 | 4.25 |
| Field: | Berry Air Force Base | | |
| Facility: | West N-S runway | | |
| Assembly Load: | 15,000 lb | | |
| 5.5 | 2 | 102.0 | 27.5 |
| 14.5 | 37 | 87.0 | 7.0 |
| 24.0 | 37 | 69.0 | 3.0 |
| 5.5 | 2 | 106.0 | 27.5 |
| 14.5 | 11 | 84.0 | 7.0 |
| 24.0 | 11 | 85.0 | 3.0 |
| 5.5 | 2 | 108.0 | 27.5 |
| 14.5 | 20 | 82.0 | 7.0 |
| 24.0 | 20 | 89.0 | 3.0 |
| 5.5 | 2 | 109.0 | 27.5 |
| 14.5 | 29 | 91.0 | 7.0 |
| 24.0 | 29 | 90.0 | 3.0 |
| Field: | Blythe Air Force Base | | |
| Facility: | N-S runway | | |
| Assembly Load: | 25,000 lb | | |
| 4.5 | NP | 98.0 | 43.0 |
| 10.5 | NP | 88.0 | 16.0 |
| 24.0 | NP | 82.0 | 4.6 |
| 4.5 | NP | 101.0 | 43.0 |
| 10.5 | NP | 92.0 | 16.0 |
| 24.0 | NP | 85.0 | 4.6 |
| 3.0 | NP | 94.0 | 59.0 |
| 6.5 | NP | 88.0 | 29.0 |
| 24.0 | NP | 86.0 | 4.6 |
| 4.5 | NP | 103.0 | 43.0 |
| 10.5 | NP | 92.0 | 16.0 |
| 24.0 | NP | 92.0 | 4.6 |
| 4.5 | NP | 100.0 | 43.0 |
| 10.5 | NP | 94.0 | 16.0 |
| 24.0 | NP | 88.0 | 4.6 |
| K. (Continued) | | | |
| Field: | Campbell Air Force Base | | |
| Facility: | N-S runway | | |
| Assembly Load: | 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.25 | NP | 102.0 | 31.0 |
| 14.25 | 20 | 87.0 | 11.0 |
| 24.0 | 20 | 79.0 | 4.6 |
| 5.5 | NP | 101.0 | 35.0 |
| 14.5 | 20 | 90.0 | 10.6 |
| 24.0 | 20 | 83.0 | 4.6 |
| 5.5 | NP | 103.0 | 35.0 |
| 14.5 | 20 | 96.0 | 10.6 |
| 24.0 | 20 | 95.0 | 4.6 |
| 5.5 | NP | 106.0 | 35.0 |
| 14.5 | 20 | 87.0 | 10.6 |
| 24.0 | 20 | 91.0 | 4.6 |
| 10.0 | 20 | 90.0 | 17.0 |
| Facility: | NE-SW runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.0 | NP | 99.0 | 25.0 |
| 15.5 | 15 | 88.0 | 6.4 |
| Field: | Clovis Air Force Base | | |
| Facility: | N-S runway | | |
| Assembly Load: | 30,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.0 | 7 | 100.0 | 52.0 |
| 16.0 | 9 | 98.0 | 10.5 |
| 32.0 | 9 | 86.0 | 3.3 |
| 4.0 | 7 | 98.0 | 52.0 |
| 16.0 | 9 | 103.0 | 10.5 |
| 33.0 | 9 | 84.0 | 3.0 |
| 4.0 | 7 | 98.0 | 52.0 |
| 16.0 | 9 | 76.0 | 10.5 |
| 32.0 | 9 | 102.0 | 3.3 |
| Field: | Davis Air Force Base | | |
| Facility: | E-W runway | | |
| Assembly Load: | 65,000 to 75,000 lb | | |
| Assembly Type: | Dual, 37 in. c-c, 267-sq-in. contact area | | |
| 6.0 | 15 | 95.0 | 45.0 |
| 14.0 | 20 | 86.0 | 18.5 |
| 23.0 | 20 | 92.0 | 10.25 |
| 6.0 | 4 | 100.0 | 45.0 |
| 14.0 | 11 | 93.0 | 18.5 |
| 24.0 | 11 | 76.0 | 9.6 |
| Facility: | N-S runway | | |
| Assembly Load: | 65,000 to 75,000 lb | | |
| Assembly Type: | Dual, 37 in. c-c, 267-sq-in. contact area | | |
| 6.5 | 10 | 99.0 | 42.5 |
| 14.5 | 17 | 92.0 | 17.75 |
| 24.0 | 17 | 89.0 | 9.6 |

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(Continued)

* Plastic (exact Atterberg limits unknown).

Table 2 (Continued)

| Depth from Surface in. | Plasticity Index | Per Cent Mod AASHO Density | Compaction Index |
|---|---|---|---|
| K. (Continued) | | | |
| Facility: | | Taxiway 4 | |
| Assembly Load: | | 65,000 to 75,000 lb | |
| Assembly Type: | | Dual, 37 in. c-c, 267-sq-in. contact area | |
| 6.5 | 18 | 97.0 | 42.5 |
| 13.5 | 19 | 96.0 | 19.0 |
| 24.0 | 19 | 81.0 | 9.6 |
| Facility: | | Taxiway 3 | |
| Assembly Load: | | 65,000 to 75,000 lb | |
| Assembly Type: | | Dual, 37 in. c-c, 267-sq-in. contact area | |
| 6.0 | NP | 100.0 | 45.0 |
| 14.0 | 23 | 88.0 | 18.5 |
| 24.0 | 23 | 83.0 | 9.6 |
| Facility: | | Taxiway 2 | |
| Assembly Load: | | 65,000 to 75,000 lb | |
| Assembly Type: | | Dual, 37 in. c-c, 267-sq-in. contact area | |
| 6.5 | 10 | 98.0 | 42.5 |
| 14.5 | 12 | 90.0 | 17.75 |
| 23.0 | 12 | 76.0 | 10.25 |
| Facility: | | Taxiway 1 | |
| Assembly Load: | | 65,000 to 75,000 lb | |
| Assembly Type: | | Dual, 37 in. c-c, 267-sq-in. contact area | |
| 6.5 | 10 | 95.0 | 42.5 |
| 16.5 | 12 | 90.0 | 15.0 |
| 24.0 | 12 | 77.0 | 9.6 |
| Facility: | | Taxiway 9 | |
| Assembly Load: | | 65,000 to 75,000 lb | |
| Assembly Type: | | Dual, 37 in. c-c, 267-sq-in. contact area | |
| 6.0 | 10 | 91.0 | 45.0 |
| 14.5 | 13 | 90.0 | 17.75 |
| 26.0 | 13 | 93.0 | 9.5 |
| Facility: | | NW-SE runway | |
| Assembly Load: | | 65,000 to 75,000 lb | |
| Assembly Type: | | Dual, 37 in. c-c, 267-sq-in. contact area | |
| 14.5 | 12 | 91.0 | 17.75 |
| 23.0 | 12 | 82.0 | 10.25 |
| 6.5 | NP | 102.0 | 42.5 |
| 14.5 | 8 | 98.0 | 17.75 |
| 24.0 | 8 | 76.0 | 9.6 |
| Facility: | | N-S runway | |
| Assembly Load: | | 65,000 to 75,000 lb | |
| Assembly Type: | | Dual, 37 in. c-c, 267-sq-in. contact area | |
| 6.0 | 11 | 98.0 | 45.0 |
| 14.0 | 13 | 95.0 | 18.5 |
| 24.0 | 13 | 95.0 | 9.6 |
| K. (Continued) | | | |
| Field: | | Dodge City Air Force Base | |
| Facility: | | Taxiway 4A | |
| Assembly Load: | | 15,000 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 6.5 | 9 | 94.0 | 22.5 |
| 15.5 | 17 | 87.0 | 6.3 |
| 22.5 | 26 | 82.0 | 3.3 |
| 24.0 | 26 | 74.0 | 3.0 |
| 6.5 | 11 | 86.0 | 22.5 |
| 15.5 | 13 | 94.0 | 6.3 |
| 22.5 | 32 | 86.0 | 3.3 |
| 24.0 | 32 | 78.0 | 3.0 |
| Field: | | Douglas Air Force Base | |
| Facility: | | Taxiway 5 | |
| Assembly Load: | | 17,500 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 5.5 | 3 | 93.0 | 29.0 |
| 14.0 | NP | 87.0 | 8.5 |
| 23.0 | 39 | 82.0 | 3.6 |
| 5.5 | 3 | 94.0 | 29.0 |
| 14.0 | NP | 86.0 | 8.5 |
| 23.0 | 36 | 81.0 | 3.6 |
| Facility: | | N-S runway | |
| Assembly Load: | | 17,500 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 5.5 | NP | 97.0 | 29.0 |
| 13.0 | 3 | 97.0 | 9.5 |
| 22.0 | 21 | 86.0 | 4.0 |
| 5.5 | NP | 94.0 | 29.0 |
| 11.0 | 3 | 89.0 | 12.0 |
| 21.0 | 21 | 89.0 | 4.3 |
| 5.5 | NP | 103.0 | 29.0 |
| 14.5 | 3 | 92.0 | 8.0 |
| 21.5 | 15 | 85.0 | 4.1 |
| 5.5 | NP | 97.0 | 29.0 |
| 14.5 | 3 | 85.0 | 8.0 |
| 21.5 | 21 | 88.0 | 4.1 |
| 5.5 | 9 | 101.0 | 29.0 |
| 13.5 | 11 | 95.0 | 9.0 |
| 21.5 | 11 | 85.0 | 4.1 |
| 5.5 | 9 | 102.0 | 29.0 |
| 11.5 | 11 | 91.0 | 11.3 |
| 17.5 | 24 | 80.0 | 5.9 |
| 5.5 | 9 | 98.0 | 29.0 |
| 11.5 | 11 | 94.0 | 11.3 |
| 16.5 | 24 | 87.0 | 6.5 |
| 5.5 | 9 | 98.0 | 29.0 |
| 10.5 | 11 | 91.0 | 12.8 |
| 18.5 | 24 | 84.0 | 5.4 |
| K. (Continued) | | | |
| Field: | | Gainesville Air Force Base | |
| Facility: | | N-S runway | |
| Assembly Load: | | 25,000 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 4.5 | 9 | 107.0 | 43.0 |
| 16.5 | 29 | 92.0 | 8.8 |
| 4.5 | 13 | 104.0 | 43.0 |
| 14.5 | 20 | 85.0 | 10.6 |
| 28.5 | 22 | 89.0 | 3.4 |
| 4.5 | 8 | 103.0 | 43.0 |
| 14.5 | 21 | 90.0 | 10.6 |
| 24.5 | 20 | 82.0 | 4.5 |
| Field: | | Jackson Air Force Base | |
| Facility: | | NW-SE runway | |
| Assembly Load: | | 15,000 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 4.5 | 8 | 104.0 | 34.0 |
| 11.5 | 13 | 86.0 | 10.0 |
| 24.0 | 13 | 89.0 | 3.0 |
| 4.5 | 8 | 103.0 | 34.0 |
| 11.5 | 13 | 92.0 | 10.0 |
| 24.0 | 13 | 90.0 | 3.0 |
| Field: | | Keesler Air Force Base | |
| Facility: | | NW-SE runway | |
| Assembly Load: | | 15,000 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 4.5 | NP | 104.0 | 34.0 |
| 4.5 | NP | 103.0 | 34.0 |
| 4.5 | NP | 98.0 | 34.0 |
| 11.5 | NP | 101.0 | 10.0 |
| 4.5 | NP | 103.0 | 34.0 |
| 13.5 | NP | 99.0 | 8.0 |
| Field: | | Kirtland Air Force Base | |
| Facility: | | Taxiway 2 | |
| Assembly Load: | | 15,000 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 4.0 | 5 | 106.0 | 38.3 |
| 13.0 | 5 | 95.0 | 8.5 |
| 4.0 | 4 | 102.0 | 38.3 |
| 13.0 | 6 | 94.0 | 8.5 |
| 4.0 | 3 | 108.0 | 38.3 |
| 13.0 | 4 | 93.0 | 8.5 |
| Assembly Load: | | 30,000 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 5.0 | 3 | 99.0 | 43.0 |
| 13.5 | NP | 90.0 | 13.3 |
| 24.0 | NP | 84.0 | 5.5 |
| 4.5 | 4 | 91.0 | 47.0 |
| 13.5 | 8 | 82.0 | 13.3 |
| 24.0 | 8 | 86.0 | 5.5 |
| K. (Continued) | | | |
| Facility: | | N-S runway | |
| Assembly Load: | | 30,000 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 4.5 | 6 | 98.0 | 47.0 |
| 12.5 | 4 | 90.0 | 14.5 |
| 24.0 | 4 | 72.0 | 5.5 |
| 5.0 | 6 | 95.0 | 43.0 |
| 13.5 | 4 | 92.0 | 13.3 |
| 24.0 | 4 | 75.0 | 5.5 |
| 5.0 | 6 | 94.0 | 43.0 |
| 13.5 | 4 | 83.0 | 13.3 |
| 24.0 | | 77.0 | 5.5 |
| 5.0 | 5 | 104.0 | 43.0 |
| 14.0 | NP | 95.0 | 12.6 |
| 5.0 | 5 | 99.0 | 43.0 |
| 11.5 | NP | 96.0 | 16.2 |
| 24.0 | NP | 85.0 | 5.5 |
| Facility: | | NE-SW runway | |
| Assembly Load: | | 30,000 lb | |
| Assembly Type: | | Single, 100-psi tire pressure | |
| 4.5 | NP | 104.0 | 47.0 |
| 14.5 | 3 | 74.0 | 12.0 |
| 24.0 | 3 | 75.0 | 5.5 |
| 4.5 | NP | 108.0 | 47.0 |
| 16.5 | 2 | 87.0 | 10.0 |
| 24.0 | 2 | 84.0 | 5.5 |
| 5.0 | NP | 103.0 | 43.0 |
| 16.5 | 3 | 90.0 | 10.0 |
| 24.0 | 3 | 76.0 | 5.5 |
| 4.5 | NP | 102.0 | 47.0 |
| 16.5 | 2 | 89.0 | 10.0 |
| 24.0 | 2 | 77.0 | 5.5 |
| Facility: | | Taxiway 2 | |
| Assembly Load: | | 75,000 lb | |
| Assembly Type: | | Dual, 37 in. c-c, 267-sq-in. contact area | |
| 13.5 | 4 | 91.0 | 19.0 |
| 5.0 | SC* | 96.0 | 55.0 |
| 14.0 | SC | 86.0 | 18.5 |
| 5.0 | SC | 96.0 | 55.0 |
| 12.5 | NP | 94.0 | 20.5 |
| 5.0 | SC-SM | 104.0 | 55.0 |
| 12.5 | SC-SM | 90.0 | 20.5 |
| 5.0 | SC-SM | 97.0 | 55.0 |
| 12.5 | SC-SM | 92.0 | 20.5 |
| 5.0 | SC | 102.0 | 55.0 |
| 5.0 | SC-SM | 103.0 | 55.0 |
| 12.5 | NP | 94.0 | 20.5 |
| 5.0 | SP-SM | 100.0 | 55.0 |
| 13.5 | NP | 94.0 | 19.0 |
| Facility: | | Taxiway 1 | |
| Assembly Load: | | 75,000 lb | |
| Assembly Type: | | Dual, 37 in. c-c, 267-sq-in. contact area | |
| 4.5 | 8 | 99.0 | 59.0 |
| 4.5 | NP | 99.0 | 59.0 |

(Continued)

(Sheet 3 of 6 sheets)

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* Classification given where Atterberg limits are unknown.

Table 2 (Continued)

| Depth from Surface in. | Plasticity Index | Per Cent Mod AASHO Density | Compaction Index |
|---|---|---|---|
| I. (Continued) | | | |
| Assembly Load: | 17,500 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 16.0 | 20 | 85.0 | 6.8 |
| 13.0 | 11 | 88.0 | 9.5 |
| 14.0 | 16 | 84.0 | 8.5 |
| 25.0 | 17 | 69.0 | 3.2 |
| 22.0 | 10 | 79.0 | 3.9 |
| 25.0 | 15 | 78.0 | 3.2 |
| Assembly Load: | 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 15.0 | 20 | 87.0 | 10.0 |
| 24.0 | 20 | 79.0 | 4.7 |
| 15.0 | 20 | 90.0 | 10.0 |
| 24.0 | 20 | 83.0 | 4.7 |
| 20.0 | 9 | 83.0 | 6.4 |
| 26.0 | 9 | 85.0 | 4.0 |
| 17.0 | 2 | 90.0 | 8.3 |
| 13.0 | 9 | 106.0 | 12.3 |
| 15.0 | 14 | 94.0 | 10.0 |
| 15.0 | 7 | 84.0 | 10.0 |
| 15.0 | 7 | 104.0 | 10.0 |
| 14.0 | 15 | 75.0 | 11.0 |
| 15.0 | 5 | 75.0 | 10.0 |
| J. Source of Data: | Airfield Pavement Evaluation, [illegible] Force Base, [illegible]-344 | | |
| Assembly Load: | [illegible] | | |
| Assembly Type: | Twin tandem, 31 x 60 in. c-c, 267-sq-in. contact area | | |
| 12.5 | 29 | 89.0 | 22.5 |
| 24.5 | P | 72.0 | 11.0 |
| 32.0 | 36 | 91.0 | 7.75 |
| 40.0 | P* | 88.0 | 5.6 |
| 13.0 | P | 87.0 | 21.4 |
| 25.0 | P | 80.0 | 10.8 |
| 11.5 | P | 89.0 | 24.0 |
| 23.5 | P | 84.0 | 11.7 |
| 13.5 | P | 94.0 | 20.5 |
| 25.5 | P | 82.0 | 10.6 |
| 13.5 | P | 90.0 | 20.5 |
| 25.5 | P | 83.0 | 10.6 |
| 30.0 | P | 88.0 | 8.4 |
| 42.0 | P | 88.0 | 5.3 |
| 28.0 | 34 | 91.0 | 9.2 |
| 40.0 | P | 88.0 | 5.6 |
| 10.5 | 26 | 92.0 | 25.5 |
| 22.5 | P | 88.0 | 12.2 |
| 31.5 | 18 | 91.0 | 7.9 |
| 14.5 | P | 90.0 | 19.2 |
| 26.5 | P | 87.0 | 9.8 |
| 30.0 | P | 95.0 | 8.4 |
| 42.0 | P | 90.0 | 5.3 |
| 3.0 | NP | 89.0 | 98.0 |
| 3.5 | NP | 100.0 | 90.0 |
| 14.0 | NP | 96.0 | 20.0 |
| 4.5 | NP | 105.0 | 55.0 |
| J. (Continued) | | | |
| 3.0 | NP | 102.[illegible] | 98.0 |
| 3.0 | NP | 9[illegible].0 | 98.0 |
| 3.0 | NP | 99.0 | 98.0 |
| 3.5 | NP | 99.0 | 90.0 |
| 12.5 | NP | 94.0 | 22.5 |
| 3.5 | NP | 98.0 | 90.0 |
| 13.0 | NP | 93.0 | 21.4 |
| 18.5 | NP | 96.0 | 15.5 |
| 3.5 | NP | 110.0 | 90.0 |
| 3.5 | NP | 93.0 | 90.0 |
| 14.0 | NP | 100.0 | 20.0 |
| 21.0 | NP | 94.0 | 13.5 |
| 2.5 | NP | 109.0 | 81.0 |
| 4.5 | NP | 101.0 | 55.0 |
| 14.0 | NP | 99.0 | 20.0 |
| K. Source of Data: | Field Moisture Content Investigation Unpublished Data | | |
| Field: | Ardmore Air Force Base | | |
| Facility: | NS runway | | |
| Assembly Load: | 22,000 lb | | |
| Assembly Type | Single, 100-psi tire pressure | | |
| 5.5 | 10 | 102.0 | 33.0 |
| 5.5 | 6 | 98.0 | 33.0 |
| 19.0 | CL | 89.0 | 6.25 |
| Field: | Bergstrom Air Force Base | | |
| Facility: | NW-SE runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 1 | 104.0 | 34.0 |
| 4.5 | 1 | 101.0 | 34.0 |
| 14.5 | NP | 92.0 | 7.0 |
| 19.5 | 44 | 86.0 | 4.25 |
| 24.0 | 44 | 85.0 | 3.0 |
| 4.5 | 1 | 101.0 | 34.0 |
| 14.5 | NP | 90.0 | 7.0 |
| 19.5 | 44 | 86.0 | 4.25 |
| 24.0 | 44 | 84.0 | 3.0 |
| 4.5 | 1 | 104.0 | 34.0 |
| 14.5 | NP | 89.0 | 7.0 |
| 19.5 | 44 | 94.0 | 4.25 |
| 24.0 | 44 | 94.0 | 3.0 |
| 4.5 | 1 | 104.0 | 34.0 |
| 14.5 | NP | 94.0 | 7.0 |
| 19.5 | 44 | 92.0 | 4.25 |
| 24.0 | 44 | 91.0 | 3.0 |
| 4.5 | 1 | 104.0 | 34.0 |
| 19.5 | 44 | 94.0 | 4.25 |
| 24.0 | 44 | 86.0 | 3.0 |
| 4.5 | 1 | 97.0 | 34.0 |
| 14.5 | NP | 95.0 | 7.0 |
| 19.5 | 44 | 92.0 | 4.25 |
| 24.0 | 44 | 92.0 | 3.0 |
| K. (Continued) | | | |
| Facility: | Taxiway 1 | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 3 | 104.0 | 34.0 |
| 14.5 | 7 | 94.0 | 7.0 |
| 19.5 | 39 | 86.0 | 4.25 |
| 24.0 | 39 | 85.0 | 3.0 |
| 4.5 | 2 | 100.0 | 34.0 |
| 14.5 | 8 | 91.0 | 7.0 |
| 19.5 | 38 | 84.0 | 4.25 |
| 24.0 | 38 | 82.0 | 3.0 |
| Facility: | N-W runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 1 | 102.0 | 34.0 |
| 14.5 | 7 | 89.0 | 7.0 |
| 19.5 | 31 | 91.0 | 4.25 |
| 4.5 | 1 | 102.0 | 34.0 |
| 14.5 | 8 | 93.0 | 7.0 |
| 19.5 | 53 | 99.0 | 4.25 |
| 4.5 | NP | 108.0 | 34.0 |
| 14.5 | 4 | 90.0 | 7.0 |
| 19.5 | 38 | 94.0 | 4.25 |
| Field: | Berry Air Force Base | | |
| Facility: | West N-S runway | | |
| Assembly Load: | 15,000 lb | | |
| 5.5 | 2 | 102.0 | 27.5 |
| 14.5 | 37 | 87.0 | 7.0 |
| 24.0 | 37 | 69.0 | 3.0 |
| 5.5 | 2 | 106.0 | 27.5 |
| 14.5 | 11 | 84.0 | 7.0 |
| 24.0 | 11 | 85.0 | 3.0 |
| 5.5 | 2 | 108.0 | 27.5 |
| 14.5 | 20 | 82.0 | 7.0 |
| 24.0 | 20 | 89.0 | 3.0 |
| 5.5 | 2 | 109.0 | 27.5 |
| 14.5 | 29 | 91.0 | 7.0 |
| 24.0 | 29 | 90.0 | 3.0 |
| Field: | Blythe Air Force Base | | |
| Facility: | N-S runway | | |
| Assembly Load: | 25,000 lb | | |
| 4.5 | NP | 98.0 | 43.0 |
| 10.5 | NP | 88.0 | 16.0 |
| 24.0 | NP | 82.0 | 4.6 |
| 4.5 | NP | 101.0 | 43.0 |
| 10.5 | NP | 92.0 | 16.0 |
| 24.0 | NP | 85.0 | 4.6 |
| 3.0 | NP | 94.0 | 59.0 |
| 6.5 | NP | 88.0 | 29.0 |
| 24.0 | NP | 86.0 | 4.6 |
| 4.5 | NP | 103.0 | 43.0 |
| 10.5 | NP | 92.0 | 16.0 |
| 24.0 | NP | 92.0 | 4.6 |
| 4.5 | NP | 100.0 | 43.0 |
| 10.5 | NP | 94.0 | 16.0 |
| 24.0 | NP | 88.0 | 4.6 |
| K. (Continued) | | | |
| Field: | Campbell Air Force Base | | |
| Facility: | N-S runway | | |
| Assembly Load: | 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.25 | NP | 102.0 | 31.0 |
| 14.25 | 20 | 87.0 | 11.0 |
| 24.0 | 20 | 79.0 | 4.6 |
| 5.5 | NP | 101.0 | 35.0 |
| 14.5 | 20 | 90.0 | 10.6 |
| 24.0 | 20 | 83.0 | 4.6 |
| 5.5 | NP | 103.0 | 35.0 |
| 14.5 | 20 | 96.0 | 10.6 |
| 24.0 | 20 | 95.0 | 4.6 |
| 5.5 | NP | 106.0 | 35.0 |
| 14.5 | 20 | 87.0 | 10.6 |
| 24.0 | 20 | 91.0 | 4.6 |
| 10.0 | 20 | 90.0 | 17.0 |
| Facility: | NE-SW runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.0 | NP | 99.0 | 25.0 |
| 15.5 | 15 | 88.0 | 6.4 |
| Field: | Clovis Air Force Base | | |
| Facility: | N-S runway | | |
| Assembly Load: | 30,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.0 | 7 | 100.0 | 52.0 |
| 16.0 | 9 | 98.0 | 10.5 |
| 32.0 | 9 | 86.0 | 3.3 |
| 4.0 | 7 | 98.0 | 52.0 |
| 16.0 | 9 | 103.0 | 10.5 |
| 33.0 | 9 | 84.0 | 3.0 |
| 4.0 | 7 | 98.0 | 52.0 |
| 16.0 | 9 | 76.0 | 10.5 |
| 32.0 | 9 | 102.0 | 3.3 |
| Field: | Davis Air Force Base | | |
| Facility: | N-W runway | | |
| Assembly Load: | 65,000 to 75,000 lb | | |
| Assembly Type: | Dual, 37 in. c-c, 267-sq-in. contact area | | |
| 6.0 | 15 | 95.0 | 45.0 |
| 14.0 | 20 | 86.0 | 18.5 |
| 23.0 | 20 | 92.0 | 10.25 |
| 6.0 | 4 | 100.0 | 45.0 |
| 14.0 | 11 | 93.0 | 18.5 |
| 24.0 | 11 | 76.0 | 9.6 |
| Facility: | N-S runway | | |
| Assembly Load: | 65,000 to 75,000 lb | | |
| Assembly Type: | Dual, 37 in. c-c, 267-sq-in. contact area | | |
| 6.5 | 10 | 99.0 | 42.5 |
| 14.5 | 17 | 92.0 | 17.75 |
| 24.0 | 17 | 89.0 | 9.6 |

(Continued)

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* Plastic (exact Atterberg limits unknown).

(Sheet 2 of 6 sheets)

Table 2 (Continued)

| Depth from Surface in. | Plasticity Index | Per Cent Mod AASHO Density | Compaction Index |
|---|---|---|---|
| K. (Continued) | | | |
| Field: | La Junta Air Force Base | | |
| Facility: | E-W runway | | |
| Assembly Load: | 17,500 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 9.5 | 9 | 104.0 | 14.7 |
| 15.5 | 20 | 85.0 | 7.2 |
| 24.5 | 17 | 69.0 | 3.2 |
| 9.5 | 9 | 108.0 | 14.7 |
| 15.5 | 20 | 85.0 | 7.2 |
| 24.5 | 17 | 84.0 | 3.2 |
| 7.0 | 14 | 100.0 | 22.0 |
| 14.0 | 10 | 91.0 | 8.5 |
| 7.0 | 14 | 102.0 | 22.0 |
| 13.0 | 11 | 89.0 | 9.5 |
| 22.0 | 11 | 79.0 | 3.9 |
| 9.5 | 8 | 98.0 | 14.7 |
| 15.5 | 10 | 89.0 | 7.2 |
| Facility: | Taxiway 5 | | |
| Assembly Load: | 17,500 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 7.5 | 4 | 100.0 | 20.0 |
| 13.5 | 16 | 84.0 | 9.0 |
| 24.5 | 15 | 78.0 | 3.2 |
| 7.5 | 3 | 100.0 | 20.0 |
| 13.5 | 16 | 75.0 | 9.0 |
| 24.5 | 15 | 69.0 | 3.2 |
| Field: | Las Vegas Air Force Base | | |
| Facility: | Taxiway 3 | | |
| Assembly Load: | 30,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 7.0 | 6 | 100.0 | 30.0 |
| 15.5 | 16 | 82.0 | 11.0 |
| 24.0 | 16 | 73.0 | 5.5 |
| 6.5 | 11 | 109.0 | 33.0 |
| 15.5 | 8 | 76.0 | 11.0 |
| 24.0 | 8 | 80.0 | 5.5 |
| Facility: | N-S runway | | |
| Assembly Load: | 30,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.5 | NP | 103.0 | 33.0 |
| 14.0 | 26 | 91.0 | 12.6 |
| 18.5 | 17 | 75.0 | 8.4 |
| 24.0 | 17 | 79.0 | 5.5 |
| 6.5 | 8 | 100.0 | 33.0 |
| 14.0 | 10 | 90.0 | 12.6 |
| 18.5 | 17 | 90.0 | 8.4 |
| 6.5 | 5 | 101.0 | 33.0 |
| 14.0 | 12 | 88.0 | 12.8 |
| 18.5 | 17 | 91.0 | 8.4 |
| 6.5 | 5 | 101.0 | 33.0 |
| 14.0 | 17 | 88.0 | 12.8 |
| 18.5 | 17 | 85.0 | 8.4 |
| 6.5 | 3 | 100.0 | 33.0 |
| 14.0 | NP | 89.0 | 12.6 |
| 18.5 | 8 | 86.0 | 8.4 |
| 24.0 | 8 | 77.0 | 5.5 |
| 6.5 | 6 | 103.0 | 33.0 |
| 14.0 | 18 | 88.0 | 12.6 |
| 18.5 | 17 | 92.0 | 8.4 |
| 24.0 | 17 | 83.0 | 5.5 |
| 6.5 | 5 | 100.0 | 33.0 |
| 14.0 | 3 | 89.0 | 12.6 |
| 18.5 | 8 | 79.0 | 8.4 |
| 24.0 | 8 | 82.0 | 5.5 |
| Facility: | NE-SW runway | | |
| Assembly Load: | 30,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.5 | 8 | 100.0 | 33.0 |
| 13.5 | NP | 98.0 | 13.3 |
| 21.0 | NP | 89.0 | 5.9 |
| 6.5 | 6 | 96.0 | 33.0 |
| 13.5 | 11 | 91.0 | 13.3 |
| 24.0 | 11 | 83.0 | 5.5 |
| 6.5 | 5 | 97.0 | 33.0 |
| 13.5 | 1 | 93.0 | 13.3 |
| 20.0 | 1 | 99.0 | 7.4 |
| 6.5 | 8 | 99.0 | 33.0 |
| 13.5 | NP | 95.0 | 13.3 |
| Field: | Lawson Air Force Base | | |
| Facility: | Taxiway 6 | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 3 | 84.0 | 34.0 |
| 12.0 | 1 | 86.0 | 9.5 |
| 14.0 | 1 | 75.0 | 7.5 |
| 4.5 | 3 | 88.0 | 34.0 |
| 12.5 | 1 | 94.0 | 9.0 |
| 14.0 | 1 | 77.0 | 7.5 |
| Facility: | Taxiway 4 | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.5 | 5 | 87.0 | 27.5 |
| 12.5 | 20 | 75.0 | 9.0 |
| 5.5 | 5 | 87.0 | 27.5 |
| 13.5 | 20 | 89.0 | 8.0 |
| 23.0 | 20 | 89.0 | 3.2 |
| Facility: | NE-SW runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 6 | 89.0 | 34.0 |
| 12.5 | NP | 89.0 | 9.0 |
| 4.5 | 11 | 89.0 | 34.0 |
| 12.5 | NP | 88.0 | 9.0 |
| 4.5 | NP | 89.0 | 34.0 |
| 12.5 | NP | 93.0 | 9.0 |
| 4.5 | NP | 89.0 | 34.0 |
| 13.5 | NP | 92.0 | 8.0 |
| Facility: | NW-SE runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | NP | 90.0 | 34.0 |
| 11.5 | NP | 90.0 | 10.0 |
| 4.5 | NP | 89.0 | 34.0 |
| 11.5 | NP | 85.0 | 10.0 |
| Facility: | NE-SW runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | NP | 89.0 | 34.0 |
| 11.5 | NP | 85.0 | 10.0 |
| Field: | Pope Air Force Base | | |
| Facility: | NE-SW runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.5 | NP | 95.0 | 22.5 |
| 11.5 | 7 | 83.0 | 10.0 |
| 21.0 | 7 | 84.0 | 3.8 |
| 5.5 | NP | 93.0 | 27.5 |
| 10.5 | NP | 81.0 | 11.6 |
| 20.0 | NP | 85.0 | 4.0 |
| Facility: | NW-SE runway | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.5 | NP | 98.0 | 35.6 |
| 15.5 | NP | 100.0 | 9.6 |
| 23.0 | NP | 76.0 | 5.1 |
| 6.5 | NP | 92.0 | 29.0 |
| 14.5 | NP | 98.0 | 10.6 |
| Facility: | NE-SW runway | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 7.0 | NP | 99.0 | 27.5 |
| 16.0 | NP | 105.0 | 9.1 |
| 25.0 | NP | 96.0 | 4.3 |
| 7.5 | NP | 95.0 | 25.0 |
| 13.5 | NP | 105.0 | 12.0 |
| 23.0 | NP | 94.0 | 5.0 |
| 7.0 | NP | 94.0 | 27.5 |
| 16.0 | 12 | 89.0 | 9.1 |
| 26.0 | 12 | 88.0 | 4.0 |
| Facility: | N-S runway | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 7.5 | NP | 96.0 | 25.0 |
| 12.5 | 12 | 91.0 | 13.1 |
| 22.0 | 12 | 85.0 | 5.5 |
| Facility: | Taxiway 1 | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.5 | NP | 100.0 | 35.6 |
| 12.5 | NP | 105.0 | 13.1 |
| 22.0 | NP | 76.0 | 5.5 |
| Facility: | N-S runway | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.0 | NP | 91.0 | 31.7 |
| 15.0 | NP | 99.0 | 10.0 |
| 25.0 | NP | 90.0 | 4.3 |
| Facility: | Taxiway 1 | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 7.0 | NP | 102.0 | 27.5 |
| 12.5 | NP | 97.0 | 13.1 |
| 22.0 | NP | 98.0 | 5.5 |
| Facility: | Taxiway 2 | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.5 | NP | 100.0 | 29.0 |
| 10.5 | 6 | 92.0 | 16.0 |
| 20.0 | 6 | 77.0 | 6.4 |
| 7.0 | NP | 100.0 | 27.5 |
| 11.0 | NP | 109.0 | 15.1 |
| 21.0 | NP | 99.0 | 5.9 |
| Facility: | Taxiway 5 | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.0 | NP | 91.0 | 31.7 |
| 11.0 | 16 | 91.0 | 15.1 |
| 21.0 | 16 | 81.0 | 5.9 |
| Facility: | Taxiway 1 | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.5 | NP | 94.0 | 29.0 |
| 15.5 | NP | 104.0 | 9.6 |
| 25.0 | NP | 105.0 | 4.3 |
| Facility: | Taxiway 2 | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.5 | NP | 98.0 | 29.0 |
| 13.0 | 18 | 98.0 | 10.0 |
| 25.0 | 18 | 88.0 | 4.3 |
| Facility: | Taxiway 5 | | |
| Assembly Load: | 15,000 to 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 6.0 | NP | 99.0 | 31.7 |
| 14.0 | NP | 102.0 | 11.1 |
| 7.0 | NP | 100.0 | 27.5 |
| 13.5 | NP | 108.0 | 12.0 |

(Continued)

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Table 2 (Continued)

| Depth from Surface in. | Plasticity Index | Per Cent Mod AASHO Density | Compaction Index |
|---|---|---|---|
| K. (Continued) | | | |
| Field: | Pueblo Air Force Base | | |
| Facility: | E-W runway | | |
| Assembly Load: | 30,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 3 | 102.0 | 47.0 |
| 13.5 | 24 | 92.0 | 13.3 |
| 24.0 | 24 | 85.0 | 5.5 |
| 4.5 | 3 | 99.0 | 47.0 |
| 13.5 | 20 | 94.0 | 13.3 |
| 24.0 | 20 | 87.0 | 5.5 |
| 4.5 | 4 | 98.0 | 47.0 |
| 13.5 | 20 | 89.0 | 13.3 |
| 24.0 | 20 | 88.0 | 5.5 |
| 4.5 | 4 | 95.0 | 47.0 |
| 13.5 | 20 | 82.0 | 13.3 |
| 24.0 | 20 | 93.0 | 5.5 |
| 4.5 | 4 | 102.0 | 47.0 |
| 13.5 | 20 | 88.0 | 13.3 |
| 24.0 | 20 | 92.0 | 5.5 |
| Facility: | Taxiway 6 | | |
| Assembly Load: | 30,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 7.5 | 2 | 100.0 | 27.9 |
| 14.5 | 9 | 89.0 | 12.0 |
| 24.0 | 9 | 84.0 | 5.5 |
| 7.5 | 1 | 97.0 | 27.9 |
| 14.5 | 18 | 89.0 | 12.0 |
| 24.0 | 18 | 86.0 | 5.5 |
| Field: | Rocky Ford Air Force Base | | |
| Facility: | E-W runway | | |
| Assembly Load: | 16,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.0 | NP | 94.0 | 31.5 |
| 11.0 | 17 | 79.0 | 11.3 |
| 19.0 | 20 | 69.0 | 4.8 |
| 24.0 | 20 | 73.0 | 3.0 |
| 5.0 | 5 | 97.0 | 31.5 |
| 11.0 | 17 | 75.0 | 11.3 |
| 19.0 | 20 | 71.0 | 4.8 |
| 24.0 | 20 | 79.0 | 3.0 |
| 5.0 | NP | 101.0 | 31.5 |
| 11.0 | 17 | 83.0 | 11.3 |
| 19.0 | 20 | 77.0 | 4.8 |
| 24.0 | 20 | 76.0 | 3.0 |
| 5.0 | NP | 93.0 | 31.5 |
| 11.0 | 16 | 91.0 | 11.3 |
| 19.0 | 18 | 74.0 | 4.8 |
| 24.0 | 18 | 72.0 | 3.0 |
| 5.0 | NP | 99.0 | 31.5 |
| 11.0 | 16 | 91.0 | 11.3 |
| 19.0 | 18 | 74.0 | 4.8 |
| 24.0 | 18 | 73.0 | 3.0 |
| 5.0 | NP | 100.0 | 31.5 |
| 11.0 | 16 | 80.0 | 11.3 |
| 19.0 | 18 | 70.0 | 4.8 |
| 24.0 | 18 | 74.0 | 3.0 |
| Field: | Santa Fe Air Force Base | | |
| Facility: | N-S runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 12 | 101.0 | 34.0 |
| 12.5 | 10 | 78.0 | 9.0 |
| 4.5 | 11 | 103.0 | 34.0 |
| 12.5 | 10 | 78.0 | 9.0 |
| 4.5 | 12 | 104.0 | 34.0 |
| 12.5 | 17 | 82.0 | 9.0 |
| Field: | Sewart Air Force Base | | |
| Facility: | N-S runway | | |
| Assembly Load: | 25,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 18.5 | 29 | 93.0 | 7.3 |
| 24.0 | 29 | 91.0 | 4.6 |
| 17.5 | 24 | 90.0 | 8.0 |
| 24.0 | 24 | 98.0 | 4.6 |
| 14.5 | 30 | 86.0 | 10.6 |
| 24.0 | 30 | 94.0 | 4.6 |
| 24.0 | 29 | 83.0 | 4.6 |
| 17.5 | 33 | 89.0 | 8.0 |
| 24.0 | 33 | 98.0 | 4.6 |
| 17.5 | 43 | 83.0 | 8.0 |
| 24.0 | 43 | 72.0 | 4.6 |
| Facility: | Apron | | |
| Assembly Load: | 45,000 lb | | |
| Assembly Type: | Dual, 28 in. c-c, 226-sq-in. contact area | | |
| 5.5 | NP | 101.0 | 33.6 |
| 21.5 | 41 | 88.0 | 7.5 |
| 29.0 | 41 | 90.0 | 4.8 |
| 5.5 | NP | 94.0 | 33.6 |
| 21.5 | 34 | 85.0 | 7.5 |
| 31.0 | 34 | 84.0 | 4.3 |
| Facility: | NW-SE runway | | |
| Assembly Load: | 45,000 lb | | |
| Assembly Type: | Dual, 28 in. c-c, 226-sq-in. contact area | | |
| 5.5 | NP | 97.0 | 33.6 |
| 18.5 | 46 | 90.0 | 9.0 |
| 28.0 | 46 | 90.0 | 5.1 |
| 5.5 | NP | 104.0 | 33.6 |
| 22.5 | 50 | 98.0 | 7.0 |
| 28.0 | 50 | 92.0 | 5.1 |
| Facility: | New taxiway | | |
| Assembly Load: | 45,000 lb | | |
| Assembly Type: | Dual, 28 in. c-c, 226-sq-in. contact area | | |
| 5.0 | NP | 107.0 | 36.6 |
| 21.5 | 31 | 90.0 | 7.5 |
| 30.0 | 31 | 87.0 | 4.5 |
| 5.0 | NP | 108.0 | 36.6 |
| 20.0 | 36 | 91.0 | 8.25 |
| 30.0 | 36 | 96.0 | 4.5 |
| Field: | Sheppard Air Force Base | | |
| Facility: | NE-SW runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.5 | 8 | 100.0 | 27.5 |
| 12.5 | NP | 87.0 | 9.0 |
| 20.5 | 7 | 79.0 | 3.8 |
| Facility: | N-W runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.0 | NP | 94.0 | 31.0 |
| 17.0 | 11 | 94.0 | 5.5 |
| Facility: | NE-SW runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.5 | 7 | 100.0 | 34.0 |
| 11.5 | NP | 89.0 | 10.0 |
| Facility: | N-S runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.0 | NP | 90.0 | 31.0 |
| 16.5 | 18 | 85.0 | 5.8 |
| 5.5 | NP | 97.0 | 27.5 |
| 17.5 | 28 | 89.0 | 5.2 |
| Facility: | Taxiway 5 | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.0 | NP | 91.0 | 31.0 |
| 14.5 | 17 | 93.0 | 7.0 |
| 24.0 | 17 | 82.0 | 3.0 |
| Facility: | NW-SE runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.5 | NP | 87.0 | 27.5 |
| 16.0 | 34 | 91.0 | 6.0 |
| Facility: | E-W runway | | |
| Assembly Load: | 15,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 5.0 | NP | 93.0 | 31.0 |
| 16.5 | 30 | 93.0 | 5.8 |
| Field: | South Plains Air Force Base | | |
| Facility: | NW-SE runway | | |
| Assembly Load: | 12,000 lb | | |
| Assembly Type: | Single, 100-psi tire pressure | | |
| 4.0 | 7 | 92.0 | 35.0 |
| 12.0 | 13 | 92.0 | 9.0 |
| 4.0 | 3 | 102.0 | 35.0 |
| 12.0 | 12 | 98.0 | 9.0 |
| 4.0 | NP | 105.0 | 35.0 |
| 12.0 | 13 | 95.0 | 9.0 |
| Field: | West Palm Beach Air Force Base | | |
| Facility: | NW-SE runway | | |
| Assembly Load: | 35,000 to 95,000 lb | | |
| Assembly Type: | Dual, 37 in. c-c, 267-sq-in. contact area | | |
| 5.5 | NP | 99.0 | 63.0 |
| 23.5 | NP | 102.0 | 12.1 |
| 33.0 | NP | 99.9 | 7.6 |
| Assembly Type: | Dual, 44 in. c-c, 630-sq-in. contact area | | |
| 5.5 | NP | 100.0 | 41.0 |
| 16.5 | NP | 92.0 | 14.0 |
| 26.5 | NP | 100.2 | 8.5 |
| 9.5 | NP | 94.0 | 24.8 |
| 20.0 | NP | 89.0 | 11.8 |
| 29.5 | NP | 95.5 | 7.4 |
| 6.0 | NP | 92.0 | 37.0 |
| 12.0 | NP | 82.0 | 19.0 |
| 20.0 | NP | 85.9 | 11.8 |
| Facility: | N-S runway | | |
| Assembly Load: | 35,000 to 95,000 lb | | |
| Assembly Type: | Dual, 44 in. c-c, 630-sq-in. contact area | | |
| 4.5 | NP | 94.0 | 48.5 |
| 13.5 | NP | 93.0 | 17.8 |
| 23.0 | NP | 96.5 | 10.0 |
| Facility: | E-W runway | | |
| Assembly Load: | 35,000 to 95,000 lb | | |
| Assembly Type: | Dual, 44 in. c-c, 630-sq-in. contact area | | |
| 7.0 | NP | 94.0 | 33.8 |
| 17.5 | NP | 96.0 | 13.5 |
| 26.0 | NP | 99.0 | 8.6 |
| 6.0 | NP | 98.0 | 37.0 |
| 21.5 | NP | 94.0 | 10.8 |
| 31.0 | NP | 98.9 | 7.0 |
| 14.0 | NP | 98.0 | 17.0 |
| 23.5 | NP | 102.7 | 9.6 |
| Facility: | Taxiway A3 | | |
| Assembly Load: | 35,000 to 95,000 lb | | |
| Assembly Type: | Dual, 44 in. c-c, 630-sq-in. contact area | | |
| 5.5 | NP | 101.0 | 41.0 |
| 21.5 | NP | 94.0 | 10.8 |
| 31.0 | NP | 99.8 | 7.0 |
| Facility: | Taxiway A4 | | |
| Assembly Load: | 35,000 to 95,000 lb | | |
| Assembly Type: | Dual, 44 in. c-c, 630-sq-in. contact area | | |
| 5.5 | NP | 103.0 | 41.0 |
| 22.5 | NP | 93.0 | 10.0 |
| 29.0 | NP | 99.8 | 7.6 |

(Continued)

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Table 2 (Concluded)

| Depth from Surface in. | Plasticity Index | Per Cent Mod AASHO Density | Compaction Index |
|---|---|---|---|
| K. (Continued) | | | |
| Facility: Taxiway A3 | | | |
| Assembly Load: 35,000 to 95,000 lb | | | |
| Assembly Type: Dual, 44 in. c-c, 630-sq-in. contact area | | | |
| 5.5 | NP | 104.0 | 41.0 |
| 19.0 | NP | 99.0 | 12.2 |
| 29.0 | NP | 106.5 | 7.6 |
| Facility: NE-SW runway | | | |
| Assembly Load: 35,000 to 95,000 lb | | | |
| Assembly Type: Dual, 44 in. c-c, 630-sq-in. contact area | | | |
| 6.5 | NP | 100.0 | 35.0 |
| 8.5 | NP | 103.0 | 27.5 |
| 17.0 | NP | 97.0 | 14.0 |
| 26.5 | NP | 102.7 | 8.5 |
| Facility: Taxiway A1 | | | |
| Assembly Load: 35,000 to 95,000 lb | | | |
| Assembly Type: Dual, 44 in. c-c, 630-sq-in. contact area | | | |
| 6.0 | NP | 99.0 | 37.0 |
| 18.0 | NP | 97.0 | 23.3 |
| 28.5 | NP | 95.2 | 7.8 |
| K. (Continued) | | | |
| Facility: Apron C | | | |
| Assembly Load: 35,000 to 95,000 lb | | | |
| Assembly Type: Dual, 44 in. c-c, 630-sq-in. contact area | | | |
| 14.5 | NP | 94.0 | 16.5 |
| 24.0 | NP | 99.2 | 9.5 |
| 16.0 | NP | 100.0 | 15.0 |
| 25.5 | NP | 99.2 | 8.9 |
| Field: Woodward Air Force Base | | | |
| Facility: Taxiway 3 | | | |
| Assembly Load: 25,000 lb | | | |
| Assembly Type: Single, 100-psi tire pressure | | | |
| 5.5 | NP | 91.0 | 35.5 |
| 14.5 | NP | 88.0 | 10.6 |
| 24.0 | 9 | 85.0 | 4.6 |
| 5.5 | 4 | 95.0 | 35.0 |
| 14.5 | NP | 88.0 | 10.6 |
| 19.5 | 9 | 92.0 | 6.7 |
| 24.0 | 9 | 87.0 | 4.6 |
| K. (Continued) | | | |
| Field: Yuma Air Force Base | | | |
| Facility: Taxiway 7 | | | |
| Assembly Load: 30,000 lb | | | |
| 8.0 | NP | 105.0 | 25.8 |
| 12.5 | NP | 103.0 | 14.5 |
| 24.0 | NP | 97.0 | 5.5 |
| 5.5 | NP | 104.0 | 38.7 |
| 12.5 | NP | 97.0 | 14.5 |
| 17.0 | NP | 94.0 | 9.6 |
| Facility: N-S runway | | | |
| Assembly Load: 30,000 lb | | | |
| Assembly Type: Single, 100-psi tire pressure | | | |
| 6.5 | NP | 104.0 | 33.0 |
| 15.5 | NP | 99.0 | 11.0 |
| 24.0 | NP | 93.0 | 5.5 |
| 6.5 | NP | 103.0 | 33.0 |
| 14.5 | NP | 99.0 | 12.0 |
| 18.0 | NP | 101.0 | 8.8 |
| 5.0 | NP | 100.0 | 43.0 |
| 13.5 | NP | 96.0 | 13.3 |
| 24.0 | NP | 96.0 | 5.5 |
| 6.0 | NP | 103.0 | 35.7 |
| K. (Continued) | | | |
| 15.5 | NP | 103.0 | 11.0 |
| 24.0 | NP | 89.0 | 5.5 |
| 6.5 | NP | 100.0 | 33.0 |
| 16.5 | NP | 95.0 | 10.0 |
| 24.0 | NP | 89.0 | 5.5 |
| 7.0 | NP | 98.0 | 30.0 |
| 16.5 | NP | 93.0 | 10.0 |
| 24.0 | NP | 89.0 | 5.5 |

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(Sheet 6 of 6 sheets)

Table 3

Required CBR Values for Various Wheel Loads

| Single Wheels | | | Multiple Wheels | | | |
|---|---|---|---|---|---|---|
| Wheel Load kips | CBR for Indicated Tire Pressure 100 psi | CBR for Indicated Tire Pressure 200 psi | Assembly Load kips | CBR for Dual Wheel Loads | Assembly Load kips | CBR for Twin-Tandem Wheel Loads |
| **Cohesionless Sands** | | | | | | |
| **100% Modified AASHO Density** | | | | | | |
| 10 | 8.1 | 7.1 | 50 | 9.2 | 100 | 9.5 |
| 20 | 8.1 | 7.2 | 75 | 8.6 | 125 | 8.9 |
| 30 | 8.0 | 7.7 | 100 | 8.5 | 150 | 9.4 |
| 40 | 8.0 | 7.5 | 125 | 8.5 | 175 | 8.9 |
| 50 | 8.0 | 7.4 | | | 200 | 9.2 |
| 60 | 8.0 | 7.5 | | | | |
| | | | | | | Average 8.3 |
| **95% Modified AASHO Density** | | | | | | |
| 10 | 3.7 | 3.3 | 50 | 4.1 | 100 | 4.7 |
| 20 | 3.6 | 3.4 | 75 | 4.0 | 125 | 4.6 |
| 30 | 3.6 | 3.3 | 100 | 3.7 | 150 | 4.5 |
| 40 | 3.5 | 3.3 | 125 | 3.6 | 175 | 4.2 |
| 50 | 3.6 | 3.3 | | | 200 | 4.1 |
| 60 | 3.6 | 3.6 | | | | |
| | | | | | | Average 3.8 |
| **All Soils Except Cohesionless Sands** | | | | | | |
| **100% Modified AASHO Density** | | | | | | |
| 10 | 15 | 13 | 50 | 16 | 100 | 16 |
| 20 | 15.5 | 13.5 | 75 | 14.5 | 125 | 15 |
| 30 | 16 | 14 | 100 | 15 | 150 | 15 |
| 40 | 15.5 | 14 | 125 | 15 | 175 | 15.5 |
| 50 | 16 | 13.5 | | | 200 | 16 |
| 60 | 16 | 13.5 | | | | |
| | | | | | | Average 15.0 |
| **95% Modified AASHO Density** | | | | | | |
| 10 | 8.1 | 7.1 | 50 | 9.2 | 100 | 9.5 |
| 20 | 8.1 | 7.2 | 75 | 8.6 | 125 | 8.9 |
| 30 | 8.0 | 7.7 | 100 | 8.5 | 150 | 9.4 |
| 40 | 8.0 | 7.5 | 125 | 8.5 | 175 | 8.9 |
| 50 | 8.0 | 7.4 | | | 200 | 9.2 |
| 60 | 8.0 | 7.5 | | | | |
| | | | | | | Average 8.3 |

# APPENDIX A: METHOD OF DETERMINING COMPACTION REQUIREMENTS

1. This appendix describes a method of determining specific compaction criteria. The final product, as in the past, will be a plot of load versus depth for specified percentages of compaction. The percentages used might be 105, 100, 95, 90, 85, and 80. For this example only the 100 per cent value will be used.

## Determination and Use of $C_i$ Values

2. From fig. 9 of the main report, the $C_i$ values for 100 per cent compaction are 8.9 for cohesionless soils and 19 for cohesive soils. For this example the cohesive soil value will be used. This $C_i$ value of 19 represents any combination of loading and depth which requires a CBR of 19. Therefore, by entering any CBR curve with this CBR value, combinations of load and thickness can be read which will permit the plotting of a curve of load versus thickness. This is true regardless of the form of the CBR curve, the wheel configuration, tire pressure, or contact area. For this example, the CBR curves for a single-wheel assembly and 100-psi tire pressure will be used.

## Example of Final Curve

3. Fig. A1 is a set of CBR curves for 100-psi tire pressure, single wheels. Reading along the 19 CBR line, the following depths and wheel loads can be obtained:

| Wheel Load, kips | Depth, in. |
|---|---|
| 10 | 6.0 |
| 20 | 8.4 |
| 30 | 10.4 |
| 40 | 12.0 |
| 50 | 13.5 |
| 60 | 14.7 |
| 70 | 15.5 |

These data are plotted in fig. A2; and, in addition, curves for other percentages of compaction are shown. A similar plot could be produced for cohesionless soils, or for other tire pressures, or multiple-wheel assemblies, or any arrangement of loading for which CBR curves are available.

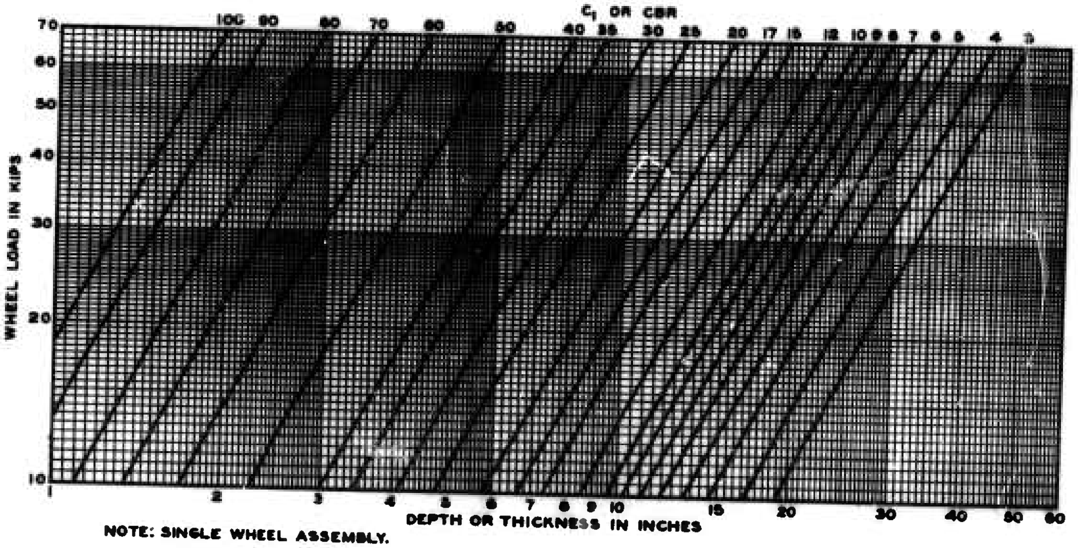


Fig. A1. CBR curves for tire-inflation pressure of 100 psi

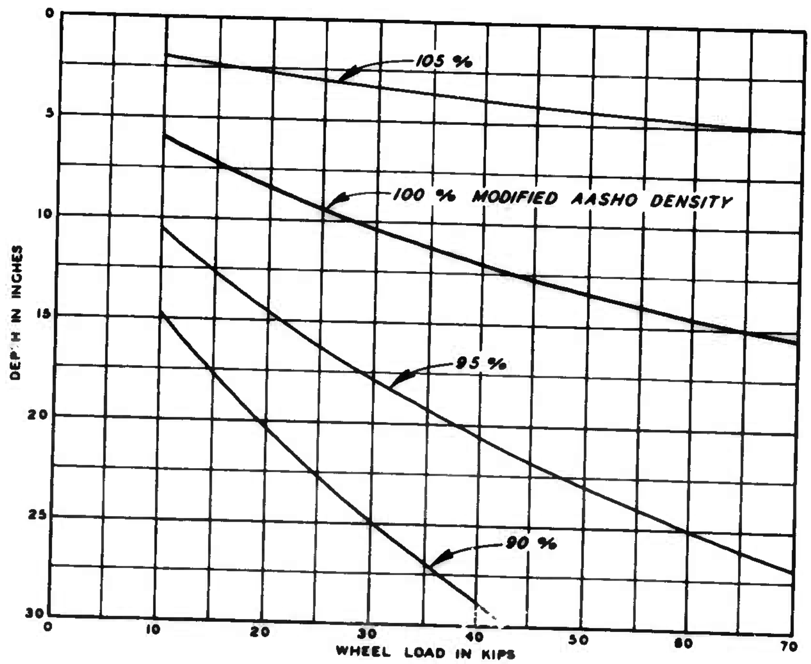


Fig. A2. Compaction requirements, single wheels, 100-psi tire pressure, cohesive soils